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NOTE.—Communications relative to the editorial management should be addressed to Mr. ROTHWELL, P. O. Box 4404, New York. Articles written by Mr. RAYMOND will be signed thus *

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NOTICE.

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THE INSTITUTE MEETING.

We give so much space this week to the admirable address of President ECKLEY B. COXE that we must postpone to the next number our account of the sessions of this meeting. Suffice it to say here, that the meeting was, as usual, highly successful and enjoyable. Over sixty members and a considerable number of ladies were in attendance, and the programme was faithfully carried out (except the excursion to Ausable Chasm, which proved impracticable), to the great profit and delight of all. Professionally speaking, the most striking papers presented were those of Mr. DUDLEY, on the composition and wear of steel rails. These, and other interesting features of the sessions, will be discussed hereafter in our columns; and we need hardly add that in due time, when we shall have attained the necessary tranquillity of mind, after exhausting enthusiasm, we shall try to acknowledge the autumnal beauty of Horicon and Champlain, and the splendid hospitality of the members and friends of the Institute who inhabit that favored region.

Among the members present were:

Mr. Cyrus Butler, New York.
" Morton Butler, New York.
" Is. Constable, New York.
" Robert W. Hall, New York.
" Walton Ferguson, New York.
Prof. T. Egleston, New York.
Mr. L. Holbrook and wife, New York.
" J. C. Bayles, New York.
" Charles Kirchoff, Jr., New York.
" J. C. Hall, Jr., New York.
" J. F. Lewis and wife, Amenia, N. Y.
" N. Mygatt, Amenia, N. Y.
" Ed. Gridley and wife, Wassaic, N. Y.
" R. W. Raymond and wife, Brooklyn, N. Y.
" H. M. House, Boston.
" W. E. C. Eustis, Boston.
" E. D. Leavitt, Jr., Cambridge.
" Edwin Mickley, Hokendauqua, Pa.
" W. E. C. Coxe, Reading.
" James T. Saenger, Yonkers.
" James A. Burden, Troy.
" J. Townsend, Troy.
" William Butler, Black Mountain.
" H. R. Searle, Washington.
" Jerome L. Rogers, Reading.
Messrs. T. F. and Frank S. Witherbee, Port Henry.
Mr. John Birkinbine, Lebanon.
Miss C. Pinner, Elizabeth, N. Y.
Mr. Thomas M. Drown and wife, Easton, Pa.
Miss Leighton, Easton, Pa.
Mr. Isaac H. Cary, Jr., Brooklyn, N. Y.
" Edw. Nichols, Philadelphia.
" H. S. Drinker, Philadelphia.
" J. M. Hartmann, Philadelphia.
" D. Torrey, Philadelphia.
" G. Neilson and wife, Philadelphia.
" Charles E. Hall, Philadelphia.
" H. A. Vezin, Philadelphia.
" F. A. McDowell, San Francisco.
" John A. Walker, Jersey City.
Prof. R. H. Thurston, Hoboken, N. Y.
Mr. C. Constable, Rockwood.
" E. M. Ferguson and wife, Pittsburg.
" Joseph C. Kent, Philipsburg.
" E. Ray Thompson, Troy.
" A. M. McClellan, Drifton.
" Eckley B. Coxe, Drifton.
" Charles B. Dudley, Penn. R.R
" J. P. Pardee.
" E. P. Jennings, Ithaca.
" H. B. Butler, Ticonderoga.
" William Hooper, Ticonderoga.
" Mr. John C. Earl, Whitehall.

*

THE GROWING INTEREST IN MINING INVESTMENTS.

Our Eastern capitalists seem to be of one mind upon the question of the next sensation in the investment line. They all, even those who have no idea of ever investing in mines, are convinced that mining, and for the moment gold and silver mining, is the field of the next excitement, and that in it more fortunes will be made—and lost—in the next five years than in all other branches of industry. The growth of interest in this branch of industry has been exceedingly rapid within the past few months, and it will, unquestionably, before long eclipse that in railroad and other securities which have so thoroughly disgusted investors since 1873. As the exponent of this great industry and as having the most intimate expert knowledge of the intrinsic value of mining as a business and an investment, we hail this reviving interest as the immediate forerunner of "good times." In no other business, will an investment, judiciously made yield any thing like as good returns, and there is no necessity for prudent investors to assume exceptional risks in the attainment of the most satisfactory profits. That investments made upon rumors or statements, circulated by interested and non-expert brokers, "that ——— stock will advance," should involve losses to the too confident capitalist is not at all surprising; investments made in any other direction in the same reckless manner would also do so. There are a few really valuable mines now quoted here, and there will before long be several others that can and will make public satisfactory evidence of their value, and will publish periodical reports stating the progress of work at the mines and the amounts expended and received for ore, etc. These statements, made officially, are capable of verification, and are a great safeguard to investors; and only those mines which make public such periodical returns offer the information that prudent men should require before parting with their money. There are plenty of good mines to invest in, and there is no occasion for such haste in making a purchase as will prevent the investor from obtaining the most undoubted evidence of the value of property offered.

The interest in mining investments is to be encouraged and put upon a permanent basis only by making them remunerative; and it has been, and shall continue to be, the constant aim of the ENGINEERING AND MINING JOURNAL, which has no stock-broking or other conflicting interests, to give such disinterested information as may put investors on their guard against the bogus or over-valued enterprises that are already seeking to beguile the confiding of their money; and to reiterate the not unnecessary advice, that mining investments, to be remunerative, should be made with prudence and knowledge. When this condition is fulfilled, they are, without the least doubt, much more remunerative than those in any other branch of industry. Mines can be purchased at any time, at figures upon which they *are and have been paying* (*not* they *can* or *will* pay) from two to five per cent a month *net profits*, while any developed mine which has not, in the past, paid any profits, is merely "a prospect," and the greater the unprofitable developments, the poorer the prospect.

No doubt the development of "prospects," when great care is taken in their selection, may be, and often is, exceedingly remunerative, though it is, of course, more or less "hazardous;" but as a rule, "prospect-holes" which come on the market are valued as if they were mines, and the public is asked to pay for them their prospective value as measured by their most sanguine promoters. It is needless to say that such "mining investments" are simply throwing away money, and are most injurious to the growth of a permanent, legitimate interest in the most profitable industry the world has ever known.

We would also repeat our warning to capitalists to beware of investments in companies whose management refuses or fails to make public the fullest information for the benefit of its stockholders; those close corporations which bore ahead with the diamond drill—an excellent precaution in itself—and whose managers let the public and their own stockholders know what has been found only after they have manipulated the market for their personal benefit, are wholly unworthy of confidence. Mining is a legitimate industry, and there is no reason why its management and business should be conducted in this secret manner, which encourages gambling and dishonesty, any more than that a bank, a railroad, an insurance company, or any well and prudently-managed business above ground should be manipulated for the special benefit—as, alas! but too many are—of their directors.

BLASTING GELATINE—A NEW EXPLOSIVE.

A new explosive agent, discovered by M. NOBEL, and pronounced by the Austrian Militär-Comité to be highly suitable for military purposes, is likely also to rise high in favor for blasting purposes, and, if all that is told about it be true, to send dynamite entirely into the shade. This substance, called in England "*Blasting Gelatine*," is formed by dissolving collodion cotton in nitro-glycerine in the proportion of 10 per cent of the former to 90 per cent of the latter. The result of the solution is a gelatinous, elastic, transparent, pale-yellow substance, having a density of 1·6, and the consistence of a stiff jelly. The new explosive is in itself much less easily affected by blows than ordinary kieselguhr-dynamite, but it may be rendered far more insensible to mechanical impulse by an admixture of a small proportion (from 4 to 10 per cent) of camphor. Experiments have been carried out, the result of which is to prove that the new explosive possesses, weight for weight, 25 per cent, and bulk for bulk, 40 per cent more explosive power than ordinary dynamite. With moist gun-cotton, gelatine compares nearly as favorably. The temperature at which

it explodes is about 204° C., when heated gently, and 240° C. when heated suddenly. The addition of camphor, however, seems to raise this point to 300°, or 330° C. Water has little or no effect upon this substance; it may be burned in considerable quantities without any fear of explosion, and it is as stable and durable as either dynamite or gun-cotton. The cost of the production of the new article is half as much again as kieselguhr-dynamite, and about the same as that of compressed gun-cotton. We hear that a factory has been, or is being, erected in Scotland for the manufacture of blasting gelatine, for blasting purposes, so that we are soon likely to hear more of this curious explosive agent.

NEW PUBLICATIONS.

Directory to the Iron and Steel Works of the United States. *Corrected to Sept. 1st*, 1878. *Prepared and published by the American Iron and Steel Association.* Philadelphia. 1878.

Mr. Swank's careful catalogue is especially valuable at the present time, as furnishing important data to those who attempt to forecast, either in the public interest or in their own, the future of the different branches of the iron and steel industry. In all such calculations, the number, capacity, and condition of existing works are necessary elements. The present classified list, embracing the blast-furnaces, rolling-mills, steel works, catalan forges, and bloomaries in every State and Territory, is far more complete than that of November, 1873, of which it is a revised and enlarged edition. Mr. Swank says in his preface:

"The new features largely embrace a better classification of the steel works of the country, and of the works that manipulate steel. In the description of furnaces we have incorporated, wherever possible, the quality and brands of iron made by each furnace, and the kind of ore used. In the description of rolling-mills, an effort has been made to obtain information concerning the specialties of each mill, and the brands used. In the description of steel works, a fairly successful effort has been made to ascertain the number of pots in each establishment, and its brands and specialties."

This is a pretty clear statement of the nature of the directory, and we would adopt it as our own, but for the vagueness of one term in the first sentence. What it is to "largely embrace" we would like to understand better than we do, before lending our reputation to the assertion. If largely embracing is only an emphatic way of including, all right: we confirm the statement, and are willing to add of our own free-will that Mr. Swank, for one who confines his embrace to "features" only, has succeeded in embracing very largely indeed!

The following tabulated statement gives in condensed summary the range of this useful compilation:

Number of completed blast-furnaces, September 1st, 1878	698
Annual capacity of all the furnaces in pig-iron, net tons	5,868,000
Annual capacity of bituminous furnaces in pig-iron, net tons	2,587,000
Annual capacity of anthracite furnaces in pig-iron, net tons	2,281,000
Annual capacity of charcoal furnaces in pig-iron, net tons	1,000,000
Number of rolling-mills, September 1st, 1878	340
Number of single puddling furnaces in rolling-mills (a double furnace counting as two single ones)	4,463
Number of puddling furnaces in steel works and bloomaries	51
Total number of single puddling furnaces	4,514
Number of trains of rolls in rolling-mills	1,252
Number of trains of rolls in steel works of all kinds	95
Total number of trains of rolls	1,347
Annual capacity of all rolling-mills in finished iron, net tons	4,461,000
Annual capacity of all the rail mills in heavy rails, net tons	1,972,000
Number of Bessemer steel works, September 1st, 1878	11
Number of Bessemer converters	22
Annual capacity in ingots, net tons	750,000
Number of open-hearth steel works, September 1st, 1878	14
Number of open-hearth furnaces	22
Annual capacity in ingots, net tons	100,000
Number of crucible cast-steel works, September 1st, 1878	38
Number of steel melting-pots	3,400
Annual capacity in ingots, net tons	90.000
Number of miscellaneous steel works, September 1st, 1878	8
Annual capacity of merchantable steel, net tons	22,000
Number of steel-manipulating works, September 1st, 1878	23
Number of catalan forges (blooms from ore, September 1st, 1878)	64
Annual capacity in blooms and billets, net tons	65.000
Number of bloomaries, September 1st, 1878 (blooms from pig-iron)	58
Annual capacity in blooms, net tons	65,000 *

LIXIVIATION IN COLORADO.

Editor Engineering and Mining Journal:

Sir: In your paper of the 28th of September, Mr. Rudolph Keck criticises the Augustin Process of Lixiviation. Allow me to answer this criticism in a few lines. First, your contributor gives the reasons why lixiviation is superior to amalgamation; he then makes a statement with which I can not agree—that some rich ores, in consequence of certain materials in their gangue (for instance, talcose schist, calcspar, and heavy spar), present insurmountable difficulties in leaching. I will answer this criticism best by relating the history of this summer's run at the Van Gieson Lixiviation Works in this city.

We have some sixty mines, which produce leaching ore; the "Red Rodger," spar and brittle silver; "Dolly Varden," pyrites, with some brittle silver; "Yankee Boy," brittle and ruby silver ore; "Silvia Lode," copper "Glance Lode," "Summit Lode," "Belle of the West," "Belle of the East," "Plutarch," "Emerald Isle," "Poughkeepsie," "Gypsy Queen," and a host of others. All these mines contain pyrites, and yet no difficulty was found in working their ores, although these pyritous ores must be *avoided* in leaching processes, according to your contributor.

The average yield of the summer's run, at the Van Gieson Works was $97\frac{88}{100}$ per cent of the silver in the ore; and any gentleman who wishes to erect works would do well to look at these before doing so. Leaking vats, dirt, and disorder are not the faults of the leaching process, but rather of the men who have charge of them. If Mr. Keck will visit Professor Hill's vat-rooms, he will see no leaking vats, no dirt, and no disorder; but every thing as neat as a pin; such is also the case here, and in all well-regulated lixivating works.

I will make but one more remark, and that is, that in the first part of Mr. Keck's article "heavy spar" is one of the insurmountable difficulties placed in the way of leaching; and in the latter part of the article he admits that the "Rosita ores," although containing heavy spar, leach slowly.

There are at present two lixiviation works in San Juan, one on Cement Creek, near Silverton, the other in Lake City, and both are successful. We have a great many ores in San Juan which, in my opinion, are eminently adapted to leaching, and to no other process.

Very truly yours,
Morgan Draper, E.M., C.E.

Lake City, Colo., October, 1878.

MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

President Eckley B. Coxe's Address.

MINING ENGINEERING.

I shall ask your attention, this evening, to a few reflections upon the subject of Mining Engineering as a Profession in the United States, its past, its present, and its future, and its duties and opportunities with reference to the proper development of our great mineral resources.

Thirty years ago, there were scarcely any mining engineers in this country, and but few in England, and there were no institutions where young men could be educated for the profession in the English language. France and Germany have been able for about a century to boast of mining schools of a high character, that number among their graduates such men as Humboldt, Weisbach, Rittinger, Combes, and Gruner.

Of the few we then had worthy of the name of "mining engineer," some studied in the continental academies, and others were graduates in the school of practical experience, and had learned their profession in mines and smelting-works. Their work consisted principally in making surveys and maps of mines and mining properties, geological reports, and analyses of ores; but the mining engineer, whom we often meet with now, who has studied chemistry, physics, mineralogy, geology, mechanics, and drawing; who is more or less familiar with machinery and its construction, and with the practical management of mines or smelting-works, and who is an *expert* in some one branch of his profession, would have been very difficult if not impossible to find in the United States. The inducements held out to ambitious and talented young men to enter the profession were, it must be admitted, very small. By a large portion of the community, a mining engineer was considered to be merely a bait with which unsophisticated capitalists were to be caught, and his opinions were considered to be worth so much a page and to favor any view which his employer wished to have advocated. He was seldom consulted as to the proper method of working a mine or running a furnace; he was rarely called upon by directors of works, except for extraordinary work, such as to give the direction in which a tunnel should be driven, or to analyze a new ore or limestone. There was no recognized standard in the profession, and there were great openings for unprincipled adventurers, of which many charlatans took advantage. Up to within fifteen years, mining engineers were too often regarded by those who had dealings with them with great distrust, and well-educated persons may yet be found who have no idea what a mining engineer is, nor what he is called upon to undertake.

This feeling is, however, wearing away. We now have mining engineers whose names are as well known abroad as at home; whose opinions are respected and paid for, although, I am proud to say, they can not be bought. We have schools whose graduates are well qualified to enter the ranks of the profession when they have obtained the proper practical experience; and there are few parts of the country without mining engineers of established reputation, unless, in consequence of the peculiar condition of the locality, there is no need of their services.

Mining engineering is now recognized as an important profession, with its own periodicals and works of reference. The rapid development and the flourishing condition of the Institute, now numbering over seven hundred members, notwithstanding the almost unprecedented depression of all business connected with mining, shows how firmly the profession has taken root in the United States.

The causes of this change are very interesting, and to some of them I shall devote the greater part of the few moments that I shall detain you. No doubt the general development of the country, the advance in education, the better appreciation of the duties of the profession and of the aids that a mining engineer can give to industrial enterprises, have had their effects; but the most interesting and most efficient cause in bringing about the result is, I think, the great change in the problem which is now presented to owners of mineral properties, and which, to be successful, they must solve.

Thirty years ago, the effects of railroads had scarcely begun to be felt. Mining (I here use mining in its widest sense—that is, as including all mining, metallurgical, and other enterprises which fall within the province of the "mining engineer," as that title is understood by this Institute)—mining, I repeat, was of a very different character from that with which we are familiar at the present day. In the first place, the want of means, or, what is the same thing, the great expense of transporting the ore, metal, or other product obtained, if it were very bulky or very heavy in proportion to its value, naturally limited the market, and consequently the output of the mines, iron furnaces, etc. If the market was not limited, the difficulty of obtaining more than a certain amount of charcoal where that fuel was used, or of bringing coal from a distance, prevented in another way the development of many industries. Sometimes the difficulty of transporting food, the thinness of population, or the lack of machine-shops for doing heavy work, and the lack of capital, prevented the building up of great industrial centers and the utilization of many now valuable deposits.

In consequence of these circumstances, mining industry was for the most part confined, except where specially rich or pure ores were found, to points possessing a local market, or where the works could be erected at a small expense, utilizing perhaps water-power which is, although often limited and uncertain, economical for small establishments.

Little effort was made to economize fuel or ore; but every thing was, as a rule, sacrificed to saving as much as possible in the original cost of the plant. The furnaces, buildings, machinery, etc., were, in consequence, generally of a very rude and defective construction, and were built and managed by men who had but little scientific knowledge of their business.

Under these circumstances, we can well see that there was but little place for the mining engineer. Works of such rude character, where cheapness of installation was generally the only point insisted upon by the proprietor, could be, and usually were, constructed by the mechanics of the neighborhood, under the direction of some practical miner or smelter. We must remember that the very fact of the difficulty and expense of transporting ore, fuel, etc., prevented, to a large extent, competition, and gave to the owner of the richest and purest ore-bed, or of the largest forest, or best water-power in a certain locality, a practical monopoly of the adjacent market; for, to be successful in business, all that was necessary for him was to be able to obtain his product at a less cost than his neighbors, whose works were, of course, as rude and whose method of production as expensive as his own. Land was cheap, the wants of the people few, and there had not been that development of the principle of association leading to the formation of joint-stock companies possessed of capital sufficient to put up expensive works, so arranged as to obtain at a minimum cost a large output of the best quality.

The actions of the miners and metallurgists were more like those of the hunters in South America, who, after killing the cattle on the pampas, take the hide only, leaving the meat upon the ground; as they can earn more money in the same space of time in that way, and do not care how much is wasted. "The cattle will last out our time!" they think.

With the introduction of railroads, supplemented by the canals already in operation, came the era of the cheap transportation of heavy and bulky articles, and with it the tendency to concentrate mining and metallurgical establishments in certain centers. It now became possible to work deposits of ore which formerly were so far from fuel as to be practically valueless, and to obtain ores and fuels of different grades and composition. The problem presented to the miner became much more complicated, and required ability and intelligence of a much higher order to solve satisfactorily.

In the good old time, as it was called, a land-owner discovering a bed of iron ore on his property, apparently rich enough to work, would, if he were a prudent man, send a sample of it to the nearest forge and have it made into iron. If the experiment were not successful, the matter would be dropped; if successful, the owner, after having satisfied himself that he could obtain fuel enough, and that he could sell his product in his immediate neighborhood without fear of too great local competition, would employ one of the men from the forge where the experiment had been made to build one like it, and would then begin to make iron, limiting his production to the wants of the local market. There was comparatively little inducement to try to diminish the cost of production and to improve the product so long as iron from other districts did not come into his market.

Now the development of our railroad system has altered all this. Iron from one part of the country can be sent into almost any other, and the home market can only be held by the metal produced in any locality, so long as it can be sold at the same prices as that from a distance.

If a prudent person thought at the present day of investing his money in the erection of an iron furnace, before beginning operations he would obtain samples of all the available ores, fuels, and limestones, and estimates of the prices at which they could be mined and delivered at the furnace. He would have them carefully analyzed, so as to be able to judge not only of their relative values, but also of the results which could be obtained by mixing them in various ways. He would endeavor to determine the cost of production and the selling price of the various kinds of iron he could make. He would thoroughly investigate the whole subject of the transportation, not only of the raw materials to his furnace, but also of his product to market, and of the food and other supplies needed for his works. He would also consider whether there were other centers of production which would compete with him for his market, and if so, on what terms. Another question not to be neglected would be, the number of workmen to be obtained in his immediate neighborhood, and whether the demand for laborers occasioned by the erection of the new works would compel their importation from other districts; and if so, how far this would increase the rate of wages he would be obliged to pay.

The next matter to be considered would be, how far economy in the cost of production could be realized in every department by the substitution of machinery for the work usually done by men.

In order to compete successfully, the works must be built in the best manner, care being taken not to increase the future cost of production by cutting down the estimates for the plant. To grasp this great problem, to thoroughly investigate it, and to draw the proper conclusion, is the best test of the true engineer; that is, of him who has mastered both the theory and the practice of his profession—of the man who neither neglects the theoretical speculations of the chemist, the physicist, the geologist, and the mechanical engineer, nor the facts and opinions of the practical men whose daily contact with the actual working of the furnaces enables them to make very valuable suggestions; for hints which at first appear of little importance sometimes lead to great results.

It is this change in the condition of the industries of the United States that has contributed in the greatest degree to build up our profession. The competition, not only of their immediate neighbors, but, owing to the improved methods of transportation, of the whole world, has forced upon the attention of owners of mines and furnaces the importance of having the best skilled scientific aid obtainable; for it now has become important to know not only what advantage you may have over your competitors, and how you can best utilize them, but also those which they have over you. I take an example from my own experience. In pursuing the business of mining, shipping, and selling anthracite coal, our firm has expended a large amount of time, money, and labor in investigating the chemical composition and physical properties, not only of the coal we mine, but also of all others with which we come in contact in the market; and we think we know in what respects our coal is superior and in what infe ior to that of our competitors as regards its appearance, its composition, its manner of burning, the nature and quality of ash, the location of its markets, etc. We do not imagine that we have got the best coal in the market for all purposes, but we try to know, as far as possible, the exact relative value of our coal for each purpose, and for each market. Knowing this, our business rule is to sell, if possible, our whole production, of each size, in that market, and for that purpose, to which it is best adapted. When this market is exhausted, we turn to that which then offers the greatest advantage. The importance of understanding exactly what you have to sell, and what the person to whom you are trying to sell really wants, is very great; for it is far more unfortunate to sell coal of a peculiar quality for a purpose to which it is not adapted, which naturally dissatisfies the purchaser and injures the reputation of the coal, than to miss making the sale.

We have found that the more educated scientific engineers we employ in our business, the more we try to keep ourselves *au courant* with what the profession is doing in the different civilized countries of the world, not only in our own branch—that is, coal—but in every other department of mining engineering, and the more carefully we follow the experiments and discoveries that are made by others, the more pecuniary profit we reap. For example, for the last eight or ten years, there has been a growing feeling, among those engaged in the mining of anthracite coal in Pennsylvania, that the old method of picking out all the slate by hand was too expensive, and for small coal almost impracticable, if the coal was to be well prepared, and that some mechanical method, such as jigging, would have to be adopted; and in consequence jigs have come into use.

Those first constructed were extremely expensive and complicated, and although, when working well (that is, when the machinery was not deranged), they made a very good separation, yet the difficulty of keeping them in good running order was so great that, notwithstanding the fact that they had cost several thousand dollars apiece, they have been in most cases thrown out.

In the course of time, the attention of a number of inventors was directed to the problem, and simpler and less expensive, but equally effective, jigs were invented, until finally they were built of comparatively simple construction, for about four hundred dollars, delivered at the machine-shops. As the simpler jigs were brought into use, the more complicated and older ones were abandoned; but the amount of money expended in these experiments has been very great, certainly over one hundred thousand dollars. Our firm certainly has spent from five to ten thousand dollars during the last four or five years in purchasing and experimenting with them. About three months ago, I received the Freiberg *Jahrbuch* for 1878, and in it, to my astonishment, I found a complete set of drawings and a description of a coal-breaker now in operation in Saxony, which is very similar to these we have in Pennsylvania, and in which about four hundred tons of very impure coal are prepared for market daily. The coal, as it comes from the mine, contains about 25 per cent of ash, and that shipped to market only 7 to 8 per cent, which is practically clean coal. They make six sizes, exclusive of the fine coal or dirt (as we call it), which is all saved.

These sizes correspond to our lump, egg, stove, chestnut, pea, and buckwheat. The breaker has been in successful operation for about three years, and all sizes except lump are prepared by jigging; and the product they obtain at an expense of about 5½ cents per ton is as clean as ours, and is obtained from much dirtier coal. The jig used is extremely simple; there are hardly any parts likely to get out of order; and it can be built and put into a breaker for very much less cost than the cheapest jigs in use at the anthracite collieries of Pennsylvania, probably little over one half.

As soon as I had examined the article, I had one of these jigs built, and it has worked admirably from the very start, making a good separation and occupying little more than half the space of our old jigs, the cost being practically nothing for repairs.

The moral that I would draw is this: Had I, when the jigging question became an important one in our business, availed myself of the experience of European engineers, personally or by employing an expert, and made myself thoroughly familiar with the machines they were using, I could have begun where I left off (for I built a coal-jig of my own invention), and we could have had all our works completely supplied with simple, efficient jigs without having spent as much money as we have done to find out that we were wrong. In other words, gentlemen, the day has gone by when any firm, company, or individual, having the management of large mines or metallurgical works, can afford to be without the services of a first-class mining engineer, not only in the selection of the location for the works, in laying them out and in erecting them, but also as adviser in their daily management. They want his opinion, not only as to what they should do, when they should do it, and how they should do it, but also as to what they should avoid. This is entirely outside of what many call the mercantile part of the business.

And now as to the future. Mining and metallurgy are, as we all know, very much depressed, not only in the United States, but throughout the civilized world, and the cause is, to a great extent, the manner in which works have been erected without the advice of mining engineers—in the highest sense of the word—of men who could and would have predicted the financial ruin of those companies or firms who, relying on the abnormal rise in iron or coal, have invested large sums of money, where every thing that went into the works had to be paid for at a cost double and even triple what it would be now. A little consideration would have shown that the furnace was built or the mine opened at a point or under circumstances which were not adapted to the economical production of the iron ore or coal which the company proposed to sell, since there were already in existence many establishments able to furnish it without loss, at a price which would be ruin to the former.

The mining industries of the country are undoubtedly suffering from the result of the abnormal advance in prices, particularly of iron and coal in consequence of which furnaces were erected, mines opened, rolling-mills built, and those already in operation enlarged without sufficient attention having been paid to the question just referred to.

It seems to me, however, that when the present crisis is past, our country will enter upon a new era as a producer of fuel and metals; that we shall supply not only our own market, but become a competitor for

the markets of the world; that is, if the mining engineers are true to their profession and to themselves, and if those who own or control our great mineral and metallurgical resources will grasp the real situation of affairs, and avail themselves of and profit by the advice which the true mining engineer is able to give. My reasons for believing that this change is about to take place are:

1. The fact that the demand for coal and iron and other metals is steadily increasing, not only in civilized, but also in half-civilized countries. Wood is becoming scarcer; steam is becoming daily more extended in its use; gas is being introduced everywhere; the uses of iron, and particularly of steel, are multiplying; the methods of working the metals are better understood; and there really seems no limit to the amount of iron that the world will consume.

2. The deposits of the old world are becoming, not exhausted, but in many cases more expensive to work; the demand for purer ores requires them to be brought from a great distance; the coal necessary to supply the future demand must be obtained from ever-increasing depths, and the expense of getting it is increasing, partly on account of the great depth at which it is mined, partly on account of the desire to economize the valuable fuel (for which higher royalties are now paid), partly on account of the greater restrictions laid upon mining by the increasing strictness of the mining laws in Europe, partly on account of the greater demands of the working people, who now work in England fewer hours per week than formerly. This, by diminishing the output per man and for each opening, increases the cost of production.

3. The greater and increasing cost of food abroad; for as not only a large part of the grain, but also of the cheese, pork, and beef consumed in Europe are imported from this country, the prices of these must be and must continue higher there.

4. The rate of interest, which was formerly at least fifty per cent higher here than in England, has diminished very much; and although probably lower now than it will be hereafter, when trade revives, yet I do not think that the difference will be as great in the future as it has been in the past.

5. The tendency of wages to equalize themselves between this country and Europe. Now that the steamers carry passengers for about twenty dollars from England to the United States, it is becoming very common for miners and iron-workers to go back and forth as times are better in one country or the other. That this occurs, I know, as we have had several cases among our own men; and I feel satisfied that the practice is increasing, and that hereafter it will be carried to such an extent as to cause the rate of wages paid in the two countries to approach more nearly to one another.

6. The value of land and mineral properties is generally so much less in this country that a first-class establishment can often now be built up here at less cost than it could be abroad. In some cases—though it may be well not to insist too much on that point—our taxes are less.

7. The great average intelligence of our foremen and workmen; our labor-saving machinery.

To sum up briefly: Our comparatively undeveloped deposits, the increasing demand, our cheap food, the cheapness of the voyage across the Atlantic, the low cost of land, the intelligence of our workmen, and our labor-saving machinery ought to enable our industrial establishments, if properly located and conducted in the best manner—that is, with a view of obtaining the greatest product, of the best average quality and at the lowest possible price—to compete successfully, before many years have rolled round, for the markets of the world in such things as iron, steel, and coal, as we already do in gold, silver, petroleum, wood, cotton, tobacco, etc. But, gentlemen, this is not like a prize in a lottery, to be won by chance or good luck; it must be worked for, striven after continuously, patiently, vigorously, and honestly. No want of success must discourage us or induce us to give up the contest.

The equation is not an impossible one; there is a solution; and the day will be a great one for the country when the solution shall have been found, as it must be.

Now, fellow-members of the American Institute of Mining Engineers, what is our share in the great work; how can we best aid in bringing about this so-much-to-be-desired result? By directing intelligently, vigorously, and honestly the active resources of the country into the proper channels; by preventing them from being turned away into the thousand ditches and swamps which lie upon all sides, ready to absorb here a little and there a little, and producing nothing but puddles of dirty water, which will only serve to foul the reputations of those who caused them. If we should be employed to superintend the opening of a mine, the erection of a furnace, the building of a rolling-mill, or in any other work connected with mining or metallurgy, let us not undertake it unless we feel that it is really within our branch of engineering, and that we are really expert in the matter, and capable, after having thoroughly studied the question, of carrying it through to a successful issue, provided nothing disastrous which we could be expected to foresee should occur. In the next place, let us satisfy ourselves that the enterprise has a *raison d'être;* that is, that if properly started and managed, it can defy any competition, which, as far as we can see, it is likely to be exposed to; and in considering this question, let us not shut our eyes to any circumstance that may have an influence upon the question. If, after our examination, we feel sure that the risk is too great, we should state it to our employers openly, frankly, explicitly, without regard to the fact that we are sacrificing our own position. It is our duty, and it will pay us in the long run. If we merely have doubts, state them. Those whose money will be at stake are, of course, the proper persons to decide whether or not the risk shall be taken; but we should be sure, if they do not thoroughly understand the question, that it is not from any want of honest effort on our part to make them do so. Should they decide to go on, we should satisfy ourselves that sufficient funds will be forthcoming to complete the work properly, as originally laid out, and not begin with half what we know will be necessary to carry it to a successful completion.

And those who do not desire to compete for the markets of the world must remember that they will be crushed at home by those of their rivals who put themselves into condition to do so.

We should make a careful study of the whole question, so as to determine the proper location for the works, their size and general plan; we should familiarize ourselves with all that has been done, both in this country and abroad, in all those branches which have a bearing upon our problem; we should pay particular attention to every thing that will tend to diminish the cost of production, to raise the quality of our product, and to make it uniform; for nothing adds so much to the reputation of an article, and enables it so well to hold possession of the market, as the fact that it is always the same; it will almost command better prices than a similar material the quality of which, although better as an average, is variable.

We should arrange our works to use machinery as much as possible, instead of men; and it is a great advantage if you can have two classes of workmen only: Intelligent, highly-skilled mechanics, who are well paid, and *worth their wages;* and ordinary laborers. It is well to avoid those who are neither fish nor flesh, neither good mechanics nor ordinary laborers, knowing too much to be willing to do ordinary work, and not enough to be employed as skilled mechanics. We should impress upon our employers the importance of thorough organization, perfect plant, regular work, uninterrupted by the breaking of cheap machinery or the incompetency of cheap men. We should endeavor to keep ourselves continuously *au courant* with what is going on, being ready to adopt every real improvement, but not every brilliant idea which has not been tested practically. And when our work is finished, we should feel that we have done every thing in our power to produce the most perfect work with the resources at our disposal, at the least possible cost to our employers.

If the works are managed by us when in operation, the same rules should guide our actions. We should remember that our first duty is to enable our employer to see and understand every thing connected with the engineer's department as thoroughly as he does that which relates to his own. And if, after an honest, conscientious effort to bring the operation to a successful conclusion, it should fail—and fail it may, for the mining engineer can not say with Richelieu, in the play, "There is no such word as fail!"—we should be able to write upon the ruined stack or the deserted shaft-house, "*Tout est perdu fors l'honneur.*"

ENGINEERS' CLUB OF PHILADELPHIA.

At the last meeting of the Club, Professor Lewis M. Haupt, President, read a memorial to the State Legislature praying that an appropriation be made to coöperate with the general government in the more vigorous prosecution of the Geodetic and Topographical Survey of the State, for the following reasons:

1st. The imperative demand for such work to supply correct maps for the true representation of the geology of the State.

2d. Correct maps are necessary to the proper development of the State.

3d. To reform the system of land surveying, now the source of so many uncertainties in consequence of the secular changes in variation of the magnetic meridian; and,

4th. The ultimate economy of accurate surveys.

The memorial closed with a statement of the organization required for such works.

In supporting it, Mr. Ingham, Commissioner for the Second Geological Survey, said that they have found the present maps, boundaries, etc., to be utterly worthless as regards accurate location, in many cases requiring the geology to be forced to fit county lines, and regretted that this State had not already taken steps to remedy this evil. After further discussion, action was postponed.

Mr. A. A. Roberts laid before the club the original drawings for structures on the Allegheny Portage Road (1831–6); among others, the plan of the first tunnel in America. These he has recently discovered.

A letter from Mr. J. Christie, corresponding member, was read in relation to simplifying formulæ for strains in rolled iron I, T and L beams, giving result of some experiments recently made.

Mr. Henry G. Morris exhibited plans of several boilers, which he had used with good results, and showed comparative merits of each; also plans of sugar-making machinery, with detailed explanations.

Mr. Muckle presented drawing of Eave's new safety-valve, from "Atlas Steel and Iron Works," and showed its advantages. Also read a description of Haddan's Military or Pioneer Railway, recently placed before the Royal Institution, and, when on trial, a section was erected at a speed equivalent to a mile a day for every hundred men employed. This was over uneven ground.

Louis C. Madeira, Jr.,
Secretary *pro tem.*

THE MISSISSIPPI JETTIES.

We have received from Captain James B. Eads an interesting communication on this subject, which will appear in our next.

Effect of the Yellow Fever on Southern Iron Industries.—Chattanooga, Tenn., October 14.—The Vulcan Iron Works, which was the only manufactory in operation here, was closed Saturday for want of skilled hands, throwing many laborers out of work. The Relief Committee is still in want of funds and provisions.

American Locomotives for Australia.—Shortly after the close of the Centennial Exhibition of 1876, the Baldwin Locomotive Works built a sample engine and sent it to Australia free of cost, with the understanding that it should be run on the railroads there on its merits. The design was a combination of English and American styles of construction. The engine, after a slight injury by a collision, was repaired under the direction of Dr. Williams, one of the proprietors of the works, who had gone to Australia, when its performance was attended with such excellent results that the colonial government purchased it and ordered another just like it, and also two heavy freight engines. These have been completed and are ready for shipment. The passenger locomotive is mainly of the American type. It has 18 × 24 in. cylinders, 63-in. driving-wheels, and a swing-bolster truck with four 30-in. wheels. The total wheel base is 21 ft. 6 in., and of locomotive and tender 43 ft. 6 in. The tender has 4-wheel trucks, with 36-in. wheels. All the truck-wheels for both engine and tender are steel-tired.

THE TEREDO AND ITS DEPREDATIONS.*

By Dr. E. H. Von Baumhauer, Commissioner to the Centennial Exhibition from Holland.

During a period of about twenty-five years previous to 1858, the injuries caused to the timber of marine constructions by the *Teredo navalis* were rarely noticed in Holland, when, during the summer of that year, public anxiety was awakened afresh on that subject. Some repairs, undertaken at that time, of the marine works of the port of Nieuwendam, a village situated on the Y, brought to light the fact that all the piles broke off at the slightest blow and were found to be entirely eaten off by the teredo.

The late Secretary of the Royal Academy of Sciences of Amsterdam, Prof. W. VROLIK, called the attention of the Academy to this subject at a meeting held November 27th, 1858, and the Academy appointed a commission from its own members, composed of Messrs. W. VROLIK, P. HARTING, D. J. STORM BUYSING, J. W. L. VAN OORDT, and E. H. VON BAUMHAUER, charged with the duty of collecting and examining into all facts known concerning the natural history of the teredo, and, at the same time, to inquire into the best means for preserving wood from destruction by that mollusk.

Considering the great importance of this question to our country, bathed on all sides by the sea, the commission asked the assistance of the government in its work, which was readily granted. This subject being of equal importance to other countries situated on the sea, and researches into the means of preventing the ravages of the teredo having been undertaken and the results published, especially in England, France, and Belgium, I have thought that a brief communication of the results we reached would be interesting and perhaps useful abroad, especially as our work was conducted on a large scale.

Before relating the experiments conducted by the commission, I propose to give a sketch of the examinations made by Mr. HARTING, on the structure of the teredo and its mode of life, which have been very carefully studied by M. P. KATER, at Nieuwendam.

On the Mechanism of the Apparatus with which the Teredo perforates its Galleries.—The researches of several leading naturalists into the habits and structure of mollusks which perforate hard substances, such as wood and stone, have shown that some of them, which are found in calcareous rocks, make their excavations through some chemical means, that is, by the dissolving action of an acid secretion, while the teredos and some others employ in their work purely mechanical means only. The manner in which the teredos proceed in their work has not, however, been clearly pointed out. In fact, while HANCOCK does not consider the shell, but the fleshy foot, as the boring instrument, and QUATREFAGES attributes that *rôle* to a part of the mantle of the animal, extending like a fold to the margin of the shell, CORILLAND has indicated the shell itself as the perforating instrument. By fastening the shell of a teredo on the end of a small stick of wood with gum, and turning it between the thumb and finger, he has succeeded, after four and a half hours' labor, in boring a hole in wood thirty millimeters deep. Mr. HARTING arrived at the same conclusions by a careful microscopic examination of the shell and the muscular system of the teredo. We will point out the principal results of his studies, with illustrations to make them clear:

The shell is composed of two valves of equal size, which are not fastened together with a hinge; this is also the case with all other species of the genus *Teredo* and *Pholas*. The valves are maintained in place by a fold of the mantle in form of an arc (Fig. 1, *b*), which encircles them posteriorly. Moreover, the posterior part of the mantle has a prolongation (Fig. 1, *a*, and Fig. 2, *a*) which covers, to a certain extent, the dorsal side of the valves, and extends on each side to their margin, forming two lobes (Fig. 1, *c*, and Fig. 2, *b*), which nevertheless do not adhere to the shell; by this mode of union the relative position of the valves is maintained. With other bivalve mollusks, which do not perforate, this relation is firmly fixed by a hinge; but with the teredo, the valves have a certain play, which allows a slight displacement in their relative positions. The valves are, moreover, connected by two adductor muscles, which we will soon examine more closely.

The shell presents, even when the valves are brought closely together, three large openings.

The first, on the dorsal face (Fig. 3), is occupied in part by a pallial prolongation, a continuation of which is introduced by this opening into the interior of the shell, in part by the small adductor muscle.

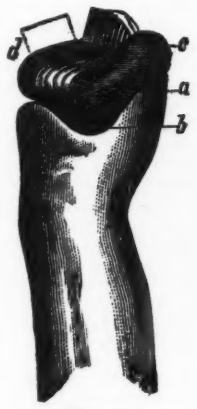


FIG. 1.

FIG. 2.

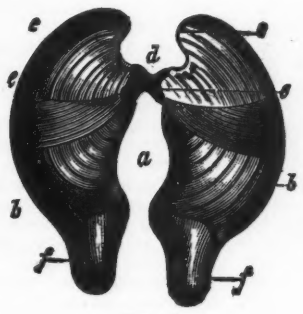


FIG. 3.

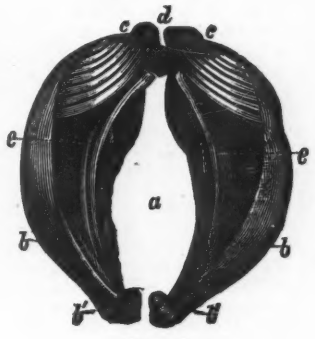


FIG. 4.

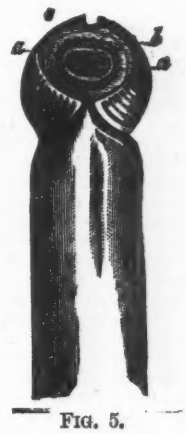


FIG. 5.

FIG. 6.

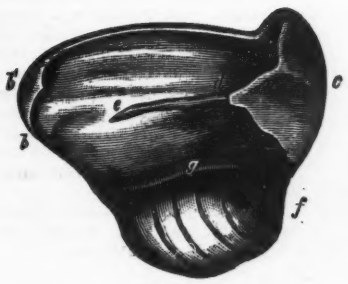


FIG. 7.

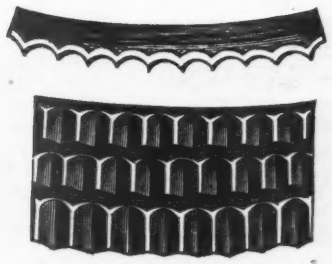


FIG. 8.

FIG. 9.

The second opening is posterior (Fig. 4, *a*), and serves to open a passage to the internal organs contained in the cavity of the mantle.

Finally, the third, placed obliquely in front (Fig. 5, *a a*; Fig. 4, *a*), is the largest, and remains always gaping open to allow the foot to pass out (Fig. 5, *b*).

Each of these valves, which form the shell, is formed of three parts, namely:

1. A posterior part (Fig. 3, *f*; Fig. 6, *f*; Fig. 7, *f*), which we can call the neck part; this posterior is the least arched, and thinner than the rest of the shell; its posterior edge is embraced by the folds of the mantle, which we have already mentioned, and thus the mantle is solidly attached to the shell.

2. The middle part (Fig. 3 *b*; Fig. 6, *b*; Fig. 7, *b*), which is the largest, is strongly arched, and presents, when seen from the side, the form of a half-moon; its ventral portion is a little more pointed, curved inwardly, and terminated by a small swelling or tubercle (Fig. 4, *b'*; Fig. 7 *b'*), which, when the shell is closed, comes in contact with the similar tubercle on the opposite valve.

3. The anterior part, which is a continuation of the upper portion of the preceding part, and is more or less spiral in form (Fig. 6, *c*; Fig. 7, *c*; Fig. 3, *c c*; Fig. 4, *c c*), and its edge makes, when seen from the side (Fig. 6), an angle of a little more than 90° with the free edge of the middle part. The limit of these two parts is marked by a zigzag line, which resembles a sort of suture (Fig. 3, *e*; Fig. 6, *e e*). This part of the shell curves backward and inward, and there terminates in a small rounded tubercle, (Fig. 4, *d*; Fig. 3, *d*; Fig. 7, *d*), situated opposite the corresponding tubercle of the other valve. This point is the axis of rotation of the two valves; that is to say, when the shell opens or closes, the tubercles retain their relative positions, while all the other portions of the valves describe about them an arc of circle more or less large.

* Extract from the Archives of Holland, Vol. I. Translated by Edward R. Andrews.

On each of these tubercles is a short, pointed projection, on which are implanted at about a right angle two other large projections, which extend into the interior of the shell a third or half its length (Fig. 4, *e e*; Fig. 7, *e*). These projections are slightly curved and flattened; they penetrate among the soft parts so that their inner face reposes upon the visceral mass; their outer face comes in contact with the thin lining or mantle, which covers the interior of the valves and extends to their extreme edge.

Examining the shell with a magnifying-glass, one sees (Fig. 6) a large number of curved lines of growth, parallel, as is usual, with the free margin of the shell; a closer examination shows that these lines differ in each of the three parts of the valve, although in fact they form a continuous whole.

On the back part of the neck of the valve (Fig. 6, *f*), the lines seem to be simply curved lines without any especial peculiarities. This is equally true of those on the posterior and largest portion of the middle part of the shell (Fig. 6, *b*); they seem to be only linear thicknesses; yet, between each pair of the strongest lines, which are the lines of growth, properly so-called, one discovers a multitude of others, much finer, which follow the same direction. Here (Fig. 6, *e e*) the lines of growth form partitions between as many rows of small, sharp, wedge-shaped teeth. Each of these teeth has two rectangular faces on either side of two small triangular faces inclined toward each other (Fig. 8); its cutting edge is placed in the direction of the axis of the animal.

The size of these small teeth varies according to the position they occupy: those which are in the vicinity of the hinge-border are the smallest; those which are on the outer ledge are the largest. And, as the part of the shell which is nearest the hinge is the earliest formed—in fact, the only portion which exists at a very early period, it follows that the average dimension of the teeth increases with the size of the shell, that is to say, with the growth of the animal. On a shell, for instance, of 7½ millim. in its largest dimension, where the total number of rows of teeth reaches 41, the width of each row near the hinge-part is 52mmm (1/19 millim.), and the size of each compartment occupied by a tooth is 28mmm (1/36 millim.), while the same measures, taken on the outer edge of the valve, give 145 and 45mmm (1/7 and 1/22 millim.). At this last point the small, wedge-shaped teeth rise to a height of 32mmm (1/31 millim.) above their common support. On an average, there are in each row about 100 teeth, and consequently more than 4000 on each valve, and more than 8000 on the two valves.

The anterior part, in the form of a spoon, has a similar structure, but still more delicate. The lines of growth form an angle of a little more than 90° with those of the middle part, of which they are a continuation. They appear like small projecting ribs, the outer edges of which are cut in the form of small teeth pressed one against the other (Fig. 6, *c*, and Fig. 9). These denticles are also in form of wedges; their cutting surfaces are perpendicular to the axis of the animal, and consequently form a right angle with the cutting surfaces of the teeth of the middle part of the shell. But they are much smaller than the latter; their width is only 10 to 15mmm (1/100 to 1/66 millim.). Their number is also more considerable, even although that part of the shell is less fully developed than the rest.

On the same shell of 7½ millim. diameter, the number of these denticles is, on an average, 250 on each rib, which makes 10,250 on the 41 ribs, and 20,500 on the two valves. We should also point out the fact that this spiral part of the shell is evidently composed of more solid matter than the rest of the shell. It has more luster, and the look of porcelain, and its surface between the ribs is smooth and glossy.—*Pop. Sci. Monthly.*

(TO BE CONTINUED.)

PHOSPHOR-BRONZE.

(*Concluded from page* 257.)

C.—Tests by Repeated Double Twisting.

A bar of hammered phosphor-bronze, under a strain of 12 tons per square inch, has until now, *without breaking*, stood more than two and one half *million* twists; while, according to Wohler's experiments, a bar of *Krupp cast-steel*, under twelve tons strain, *broke* after 879,700 twists, and another bar of the same, under thirteen tons strain, *broke* after 1,007,550 *twists*.

Drop-test made at the works: Weight of drop, one hundred and forty-eight pounds; height of stroke, twelve inches, except where otherwise stated; distance between supports, four inches; striking-face of drop, a blunted wedge-shape; test-bars, six inches long, two inches wide, and one half inch thick.

The letters inserted in the following table indicate the state of the surface of the test-bar, on the side opposite to that upon which the blow has been given: *a*, sound; *b*, slight cracks at edge; *c*, cracks at edge increase in size; *d*, slight cracks in the middle of the test-bar; *e*, cracks in the middle increase in number; *f*, cracks in the middle increase in size; *g*, remains unaltered; —, straight; ⌒, test-bar reversed.

It is apparent from these drop-tests that the rigidity of phosphor-bronze is greatly superior to that of iron; for it takes thirteen blows to bend the bar XIV. B to the depth of one inch, while the best quality of forged charcoal-iron takes eight blows, and the best charcoal scrap-iron but six blows for the same bend.

The strength of the phosphor-bronze bar No. 6 × 17 is superior to that of best charcoal scrap-iron, it having stood five more blows of twelve inches than the latter before being again completely straightened, the number of blows (3) from a height of eight feet given thereafter, being the same in both cases. The relative strength of phosphor-bronze as to that of other qualities of iron tested needs no comment.

The application of phosphor-bronze to military purposes has undergone thorough investigation. Several European governments have experimented on the use of the alloy for making cannons; without any exception, the results showed a much greater resisting power over that possessed by ordinary bronze. The following instances will be of general interest:

In Belgium, the ordinary bronze gun burst at the second shot, with a charge of 1 k. 250 gr. (2¾ lbs.) of powder and a cylindrical projectile weighing 8 k. 518 gr. (18¾ lbs.) The phosphor-bronze gun supported this charge perfectly; the normal charge was 500 gr. (1 1/10 lbs.) of powder and 3 k. (6⅔ lbs.) of projectile.

In France, the ordinary bronze gun burst at the second shot, with a charge of 1 k. 500 gr. (3½ lbs.) of powder and 16 k. (35¼ lbs.) of projectile, while the phosphor-bronze gun was fired five times with this charge, and with a charge of 1 k. 750 gr. (3⅞ lbs.) of powder and a projectile of 20 k. (44 lbs.) it burst at the second shot, owing to the wedging of the projectile in the barrel. The normal charge was 550 gr. (1⅜ lbs.) of powder and a shell of 4 k. (8⅘ lbs.)

In Prussia, it was shown by firing with the regulation charges and diminishing, at each fifty shots, the exterior diameter of the chamber, that the phosphor-bronze cannons changed their dimensions only when the thickness of the metal was below that of the dimensions of a cannon of the same caliber made of steel.

A large order has been given by the Prussian Navy Department to the phosphor-bronze works in Germany, for the casting of the turn-table machinery of its monitors.

Phosphor-bronze is being used in the manufacture of rifles and revolvers with good results, and by repeated reloading of cartridge-shells made thereof, it has been proved to resist a much greater number of discharges than any other material.

The following are some of the applications of phosphor-bronze for industrial purposes: Pinions and tooth-wheels, tuyeres, pump-cylinders, piston-packing, gunpowder-mill machinery, heavy shafting and propeller screws, bolts for locomotives and marine works, springs of sheet-metal rolled hard, wire cables and rope, and bearings.

We can but say, in conclusion, that a metal possessing qualities especially fitting it for such varied applications will not fail to make its mark in all our great industries, and its price being but little over that of gun-metal, it will not only replace that alloy, but prove a most powerful competitor to iron and steel, wherever toughness, rigidity, elastic resistance, and non-liability to crystallization or corrosion are the qualities sought for.

The American head-quarters of this manufacture are in Philadelphia, under the title of the Phosphor-Bronze Smelting Co. Limited, 2038 Washington avenue.

DROP-TESTS.

The fractions of inches stated in the table represent the permanent set of the test-bar after the blow.

Metals Tested.	Number of Blows.																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Phosphor-bronze, XIV. B	1/16 a	1/4 a	5/8 a	7/16 a	1/2 a	5/8 a	11/16 a	3/4 a	31/32 a	1 1/32 d	1 1/8 g	1 1/16 g	1 + f	⌒ 3/4 a	1 1/16 a	2/3 d	1/2 f	5/8 f	Broke.	
Phosphor-bronze, 6 × 17	1/16 a	5/64 a	1/8 a	5/64 a	33/32 a	1 1/16 a	1 1/16 a	1″ a	⌒ 1/8 a	5/4 a	3/32 a	1/8 a	5/64 a	1/4 a	— a	8-foot blows. 1″ b	⌒ a	Broke		....
Rolled charcoal scrap-iron, best quality	1/8 a	1/8 b	1 1/16 g	33/32 g	1 1/32 g	⌒ 1/8 a	1/16 a	1/16 a	1/16 a	— a	8-foot blows. 1 1/16 a	⌒ d	Broke.		..	....	....	....	..	....
Best charcoal fire-box plate-iron	1/32 a	3/32 a	1/16 b	3/16 c	1 1/16 c	1 1/16 c	1 1/32 c	1″ c	⌒ 1 1/16 a	5/64 a	1/16 d	1/8 f	Broke.		..	....	....	....	..	....
The same, cut crosswise off plate	1/16 b	5/64 c	3/32 c	1/4 c	Broke	....	....	....	....	....	....	....	....	....	..	—	....	....	..	....
Charcoal tank plate iron	1/8 a	1/32 b	1/16 c	3/32 c	1/4 c	Broke	....	....	....	....	....	....	....	....	..	....	....	....	..	....
Best forge charcoal iron	1/32 d	5/64 f	3/64 e	1 1/16 f	1 1/16 f	1 1/16 f b	1 1/16 c	⌒ 1 1/16 d	1 1/32 f	Broke	....	....	....	....	..	....	....	....	..	....

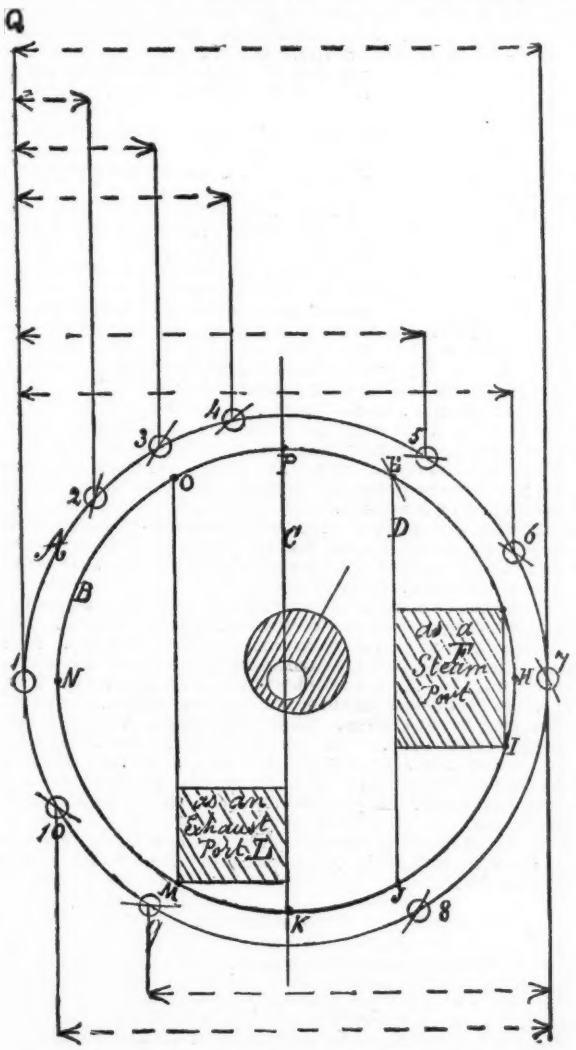
A SIMPLE AND PRACTICAL METHOD OF ASCERTAINING THE WORKING RESULTS OF A SLIDE-VALVE.

By Joshua Rose, M.E.

Among the most prominent methods of ascertaining by lines what the working results of any given slide-valve may be, the diagram invented by JOHN A. CALDWELL, of Louisville, Ky., and termed the "Lightning Slide-Valve Calculator," is noteworthy. Since its publication, however, Mr. CALDWELL has communicated a simpler form of diagram, which any one may make for himself; and this latter, with some improvements which have suggested themselves, is presented in the annexed figure. Suppose the given elements of the slide-valve and ports of an engine are as follows: Width of steam-port, $\frac{5}{8}$ inch; width of cylinder exhaust-port, $1\frac{1}{4}$ inches; lap of valve, 5 inches; cavity or exhaust-port of valve, $2\frac{1}{2}$ inches; travel of valve, $2\frac{5}{8}$ inches; stroke of engine, 24 inches.

Referring to the annexed diagram, draw the circle *A*, its circumference representing the full path of the crank-pin, and its diameter representing the stroke of the piston; but since to actually draw it full size would be unhandy, we make it to a scale of $\frac{1}{8}$ inch per foot.

Now draw the circle *B*, whose diameter must equal the full stroke of the valve (in this case $2\frac{5}{8}$ inches), both circles being struck from the same center. Now draw the vertical line *C*, which must pass through



the center of the circles. To the right of *C*, and at a distance from it equal to the lap of the valve, draw the line *D*.

Draw the circle 1, which represents the crank-pin (on its dead-center nearest to the engine-cylinder) ready to begin its stroke. Place one point of a pair of compasses on the center of circle 1, and the other point (at the intersection of *D* with the circle *B*) on *B* at *E*. Now, since one point of these compasses will always be applied to *A*, and the other to *B*, we may term them respectively the *A* and the *B* points.

The line *D* now represents two things: first, the steam edge of the steam-port; and second, the edge of the valve when the eccentric is set forward or advanced on the shaft sufficient to take up the lap of the valve, the line *F* representing that *angular advance*, as it is termed, and the amount of the advance being the degree of its angle from *C*. We have now marked off the relative positions of the crank-pin (at 1) and the edge of the valve (at *E*) of our engine, and since the eccentric is fast to the crank-shaft, it is evident that their distances apart will remain the same at every point in the crank-pin revolution. The crank-pin when on the dead-center 1 being at the end of the stroke, and the edge of the valve being just even with the steam edge of the port, we mark the width of the latter on the diagram as at the square *F*; and it is evident that as the crank-pin moves on its path (its direction of motion being denoted by the arrow), the edge of the valve will travel to the right from *D* and the port will be full open when it arrives at *G*. If, then, we place the *B* point of the compasses at *G*, and with the *A* point mark a point on *A*, that point will be the position of the crank-pin when the steam-port is full open, as shown on the diagram at 2.

The diameter of *B* being equal to the full stroke of the valve, we may now place the *B* point of the compasses on *B* at *H*, and mark on *A* the position of the crank-pin when the valve is at the end of its travel, such position being shown at 3.

It is obvious that when the valve has moved back to the edge of the steam-port, the latter will begin to close, hence we place the compass-point *B* on *B* at *I*, and mark on *A* circle 4, which will show the position of crank-pin when the steam-port begins to reclose.

When the edge of the valve meets the edge of the steam-port again, the latter will be closed, and the expansion of the steam in the cylinder will begin; hence we place the *B* point of compasses at *J*, and mark on *A* the position of crank-pin when the expansion begins, that position being shown at 5. The expansion will continue while the valve travels to a distance equal to the amount of its steam-lap (in this case $\frac{5}{8}$ inch); hence, while the valve-edge is traveling from *J* to *K* (which is $\frac{5}{8}$ inch), expansion continues, but the port begins to act as an exhaust-port as soon as it passes *K*. When the valve was moving to the right of the diagram, we marked the steam-port to the right of *D*; but, now it is moving to the left, we must mark it to the left, as shown at the inclosed square *L*; and it is evident that as the valve leaves *K*, the exhaust begins; hence, with the *B* point at *K*, we mark on *A* the crank position where the exhaust begins, which position is at 6.

When the valve-edge has moved across the port, the latter will be open full as an exhaust-port; hence with the *B* point at *M* we mark on *A* the position 7 of crank-pin, it then being on its other dead-center.

The exhaust is already full open, and it continues so while the valve passes to the end of its travel and returns to the edge of the port; hence we place the *B* point at *N* (the end of valve travel), and mark position of crank-pin at 8.

Continuing around the circle, we place compass-point *B* at *O* (representing edge of port), and mark on *A* position 9, which is where the crank-pin will be when the exhaust begins to close. Then placing the point *B* at *P*, we mark on *A* point 10, which is the position of the crank-pin when the exhaust closes and the compression or cushioning of the steam in the cylinder begins, it continuing until the crank-pin arrives at position 1, from whence it started.

We have now to ascertain the position of the engine piston when the crank-pin was at each respective point, which is easily done, as follows:

The full stroke of the piston is represented by the diameter of circle *A*, and hence by the distance between the vertical lines *Q R*, *Q* representing the end from which the piston started; hence we draw the vertical lines shown from each crank-pin position, and their distance from *Q* is the distance the piston had traveled when the crank-pin was in the respective positions; but as the circle *A* is one-eighth full size, we multiply the distance actually shown on the diagram by 8, and thus obtain from our diagram the following reading:

Steam-port full open when piston had moved $3\frac{3}{8}$ inches.
Valve at end of travel when piston had moved $6\frac{3}{8}$ inches.
Steam-port began to close when piston had moved, $9\frac{5}{8}$ inches.
Expansion began when piston had moved $18\frac{1}{2}$ inches.
Expansion ended and exhaust began when piston had moved $22\frac{1}{2}$ inches.
Port full open as an exhaust-port when piston arrived at end of stroke.
Exhaust remained open till piston had traveled $18\frac{1}{2}$ inches of return-stroke, when it began to close.
Exhaust closed when piston had moved $22\frac{1}{2}$ inches of return-stroke.
The compression and cushion took place during the last $1\frac{1}{2}$ inches of piston movement.

It is to be observed, however, that the angularity of the piston-rod would cause a slight variation in the above data, the amount depending on the length of the connecting-rod in proportion to the length of the piston stroke. The effect of the variation would be to place positions 2, 3, and 4 further in advance than in the diagram, and positions 5 and 6 a little further back when the valve was in the respective positions; while positions 9 and 10 would be placed slightly further to the left or in advance.

It will be noted that in this case we have not given the valve any lead; but all that is necessary to take lead into account is to make the distance from *C* to *D* equal the lap added to the lead while marking positions 2, 3, 4, 5, and 6, and to mark on the left-hand side of *C* a line distant from it to the amount of the lead, and let it take the place of *C* when marking the crank-pin positions 9 and 10. The positions of steam-port both *F* and *L*, however, will require to remain with their nearest edges distant in each case from *C* to an amount equal to the lap of the valve. In our example the valve had no exhaust-lap; but had it been otherwise, we should require to mark on the left of line *C* another vertical line, distant from *C* to the amount of the exhaust-lap, and the junction of this new line with the circle *B* would then be the point wherefrom to mark off position 6; or, in other words, the point where the crank-pin stood when the exhaust-port opened, and, also, the point (in place of *P*) wherefrom to mark off position 10, where the compression began, the position of port *L* remaining as it is in the diagram.

If, as is sometimes the case, a diagram thus laid out would have the circle *B* larger than circle *A*, if the latter be drawn to a scale of $\frac{1}{8}$, it may be drawn to a scale of $\frac{1}{4}$, or any other scale that will give to *A* a larger diameter than *B*; but in any case the scale must be used as the multiplier in finding the distance of the piston from the ends of the cylinder at each crank-pin position.

GRATIFYING SUCCESS OF AMERICAN EXHIBITORS AT PARIS.—PARIS, October 15.—It is now officially known that the awards to American exhibitors at the French Exhibition number seven hundred and fifty, namely: Ten grand prizes, thirty diplomas of honor, one hundred and thirty-four gold medals, two hundred silver medals, two hundred and twenty bronze medals, and one hundred and fifty-six honorable mentions. The aggregate is larger than the whole number of American exhibitors at the Paris Exposition of 1867, or at the Vienna Exposition of 1873, and is a larger award, in proportion to the number of exhibitors, than any other nation represented at this exhibition has received.

AMENDMENTS TO THE MINING LAW.—I.

By W. S. Keyes, M.E.

The fact that the practical working of the Act of May 10th, 1872, relating to the mineral lands of the United States, is not quite perfection, is proven by the agitation in some quarters, notably in Colorado, for a radical change from the present system to one recognizing only perpendicular boundaries.

Such a change would, undoubtedly, carry with it a freedom from the present vexatious and harassing succession of lawsuits, which, under the present regulations, seem as inevitable as "death and taxes." Indeed, we on the Pacific Coast have long since accepted the axiom that the possession of a good mine can only be maintained by armed force or by still more costly litigation.

As opponents of a change, we must count first upon the lawyers, whose interest it naturally is to encourage disputes; and, second, upon the swarm of hungry prospectors who eagerly wish to take advantage of the luck or labor of their more enterprising predecessors.

It is difficult to impress upon the mind of any person, not a practical miner, the greed and audacity of would-be locators. The beneficent provision of the act, granting to the owner of a ledge all other lodes or ledges within the parallelogram defining his location, is most shamefully and openly violated. Shafts are sunk in most disquieting proximity, and the local mining recorder, not being a "judicial officer," as a lawyer friend of mine expresses it, gladly records location on top of location, and is content to pocket his fee of $5 per claim, as in Bodie District to-day, and don't trouble his head about the bloodshed, litigation, and perjury, which may be expected in a mining lawsuit, particularly when the case is so bad that one or the other party insists upon a jury trial.

Jury trials in the mining regions have become a "veritable stench in the nostrils" of all honest men and legitimate miners.

Worthless, conscienceless ruffians hang about the Sheriff's office, not only ready, but anxious to be summoned to serve as trial jurors.

"Jury brokers" also abound. These men are employed to corrupt not only the jurors and witnesses, but also the judge himself, if such a thing be possible, which last is fortunately seldom practicable. In the early days, a very few of the judges were, perhaps, wrongly suspected, but I know of none now upon the bench against whom there exists a shadow of suspicion.

Hence, whenever a mining litigant believes that he possesses a good title, he is willing to try his case without a jury.

Grave differences as to the meaning of the United States statutes may and do exist, and a judicial decision is often desirable to determine their proper construction; and it is for this very reason that the Mining Law should be amended so as to render definite certain of its sections.

All will admit that an avoidance of litigation and consequent clearness of title is the first consideration. Square locations would certainly accomplish this, but I deem this step impracticable at present. Again, square locations, provided they were large enough to be of any real value, would circumscribe prospecting, and hence would do violence to the spirit of adventure necessary to develop the hidden wealth of our mines. Again, square locations would not be acceptable to the majority of the prospectors of the far west, and public opinion is not yet ripe for so radical a change, however good it, at first sight, might appear. My own plan would be to steer between the two extremes and to amend section 2320 of Chap. VI. of the Revised Statutes, so that all claims should consist of a parallelogram 1500 ft. long by 1200 ft. in width; the width to be taken in such proportion upon either side of the center of the lode as might seem good to the locator, and to *forbid any local regulation diminishing it.*

This would, I think, be acceptable as a compromise between the extremists, and would not be opposed by the great body of the miners.

I would amend Sec. 2319 so as to abolish utterly any possibility of local "rules and regulations," and put the whole question of the disposal of the mineral lands, including, of course, their location and working, into the hands of United States Deputy Mineral Land Surveyors, who should make records of location, and be subject to the same regulations which govern in the case of the agricultural lands, varied of course to suit the somewhat different state of facts. The local mining recorders err often through ignorance. They seldom understand surveying; are totally irresponsible; and their blunders, accidental or intentional, often lead to most disastrous results. I can not too strongly insist upon the desirableness, not to say necessity, of government regulation of all these preliminaries.

The government should instruct its officers to make maps of all locations, and they should be forbidden, under penalty of the penitentiary, from allowing the record of a second or subsequent location upon ground already located until one year and one day should have passed from the time of the original location. Provision should also be made for recording and determining the amount of work to be done yearly, viz., $100, and a failure to do or to record such work should leave the ground open to relocation without the possibility of an appeal.

I would suggest also the amending of Section 2320 by the elimination of the words "but no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located." These lines have caused, and are now causing, wide-spread confusion and dissatisfaction.

In the absence of a definition as to what shall be denominated a vein or lode, an opportunity is offered to recorders to favor their own friends, to refuse a record of claims of persons to whom they are unfriendly, or when in doubt themselves, not being "judicial officers," to record claim on top of claim, for fear that perhaps a former record might have been invalid. It is more than suspected that just such abuses do now exist in one of our most active mining districts in California.

I would simplify the whole matter by allowing any prospector to take up and locate 1500 × 1200 feet of mineral land, and permit him to be the judge as to its value, and not the recorder. If he should choose to locate and record a stretch of barren sand, let him do so, and let him enjoy it undisturbed.

The word lode, or ledge, seems to be as incomprehensible as Sanskrit to the great majority of miners. Some would make it broad and all-embracing, while others would limit it to the ore-shoot itself. In fact, scarcely two miners define it alike; and it may cost nearly a quarter of a million dollars to find out its meaning, as happened last year to two of our most prominent base-metal mines in the State of Nevada. The government will save itself and its citizens not only much care and annoyance, but very many hard-earned dollars, by allowing the would-be miner to determine for himself whether he has a "lead, lode, or ledge," or not. The present statute does not describe how or when a locator may demand that his claim be recorded. It affixes no penalty for a refusal, and leaves him exposed to the ill-will or neglect of the local recorder. If his claim be not recorded, he can not inforce it; he has no standing in Court or before the Land Office, and a subsequent arrival, favored by the recorder, may take from him the fruit of his toil and enterprise. Such abuses are not only possible, but actually exist. This I know of my own knowledge, and it is a crying evil from which the action of Congress alone can free us.

COLORADO MINES.

GILPIN COUNTY.

The increased yield in all parts of the Bobtail lode is attracting some attention. The Consolidated Company's property yielded about $37,000 in September, and the East Bobtail turned out over $8000. Recently the Whipple Company property, forming the western 900 feet of the Bobtail lode, has had work resumed therein. But little development took place on the eastern part of the lode, owing to the barren character of the ground near the surface. Finally, Lafrenz sunk a shaft on his 110 feet of territory and came into a rich ore vein. Sullivan & Co. own the 350 feet next east, which is worked through a level driven 260 feet east from the Lafrenz shaft and 500 feet below the surface. Up to January last, Lafrenz and Sullivan obtained $14,000 from these claims. From that time till June the receipts were $20,000, and profits $14,000, obtained in sinking and drifting, and without stoping.

Last summer, powerful hoisting machinery, costing $7000, was put up. This machinery will answer for a depth of 1400 feet. The yield of the shaft and the 500, 600, and 700 levels and stopes in September exceeded $8000. The two lower levels are 140 and 100 feet in length respectively. The vein is several feet in width, and often shows over a foot of copper smelting ore. Mill returns give from $100 to $140 per cord. About 70 per cent of the receipts are profit. The first four days of October gave $1500 for mill ore, and $670 for smelting ore sold. Two tons and 1310 pounds brought $597. This assayed 11·9 ounces of gold, 20 of silver, and 5 per cent of copper. The shaft, 735 feet deep, is being steadily driven down through ore. Still further east, the Bobtail vein is known as the Denmark vein. This is owned for 1450 feet down to North Clear Creek, by Joseph W. Holman. Some years ago, he obtained a pocket of very rich ore in a shaft. As soon as the levels from the Lafrenz shaft penetrate this territory, opening up 2000 feet of ground, the yield of the entire East Bobtail is likely to equal that of the company property. Another year may see the entire 4000 feet of the Bobtail lode yielding $100,000 per month. The company's shaft is down 825 feet, or 350 feet below the tunnel level. Over $6000 came from the company mills last week.

Denver gold shipments for the first ten days of October were $50,000, mostly from Gilpin County. Rich ore is arriving at Pueblo and Black Hawk from the Bassick, Silver Cliff, and Leadville mines. The revival of mining on and near Quartz Hill is worthy of more than a passing notice. This has been going on for over a year, until nearly every mine of any prominence, and many small affairs, are in active operation. Main lodes, such as the Burroughs, Mercer, County-Flack and California-Gardner, are operated for most of their entire length. The Monmouth-Kansas has been the main producer of that section for five years, and is now looking better than ever in the bottom. This is the deepest worked shaft in Colorado, being 942 feet deep. The West Kansas, Forks, Hidden Treasure, and Kent County are all paying handsomely. Outside of the Kansas, twelve steam hoisting rigs are at work around Nevadaville in place of two for years previous. The mines beneath them are getting opened up, so that their production will be large this winter.

Another cluster of idle lodes near by, on which work has been resumed, is that on Leavenworth Hill. Here is a net-work of veins of great size such as is rarely met with. Almost the entire surface of the hill has been worked over and gophered out. Thousands of cords of rich surface quartz have been taken away, and it is believed that over a million in gold has been obtained therefrom. The Leavenworth lode alone, which has been opened for a distance of 2000 feet, is said to have yielded $500,000. The East Leavenworth is from three to five feet wide. Both have yielded ore worth from $10 to $20 per pound. The Gold Ring gave $12,000 in a few weeks. The West Wyandotte and Mollie Newcomb have turned out some remarkably rich ore. The Wyandotte and Elmer lodes on the old Harsh vein extend nearly parallel with and near the center of this cluster of lodes and of the hill. Most of the others converge toward it or pitch into it. It is from four to ten feet wide. There is a shaft 160 feet deep near the center, and here operations have been begun by the company that has taken hold of these properties. An agent of the company once owning this part of the lode says that when trouble among the stockholders caused the mine to shut down, ore was coming out of this shaft worth between $300 and $400 per ton. Near the southern base of Quartz Hill is the Calhoun, which paid well last year. This is the character of veins lately purchased and now being reopened by New York and Colorado parties, known as the Wyandotte Consolidated Company. The shaft referred to will be enlarged and sunk steadily, as levels are run and cross-cuts driven north and south to the lodes that lie on either side, at intervals of from 10 to 30 feet, all of which dip toward the Wyandotte lode. The company has 8500 feet altogether on these veins, and its titles cover the central portion of the hill. For years mill-men drew from the waste and dump piles of this hill, when the ore-supply was slack. Large bodies of ore are known to remain where they were covered by the falling in of walls and levels, and there is plenty of mineral in sight in some of the shafts. Pitch blende was obtained from the Leavenworth vein. There can be no doubt of a heavy product of gold before work has been carried on many months. Messrs. Harsh and Pendleton are now superintending operations.

THE SAN JUAN REGION.

The San Juan Reducing Company's lixiviation works, at G[illegible]ckstone

recently produced 200 pounds of silver, worth $2750, from a six days' run. Capacity, six or more tons daily. Ore from the new carbonate district of the Elk Mountains assayed 974 ounces in silver. The George Washington lode, in Hinsdale County, has given a mill run of 461 ounces of silver, and 11 ounces of gold, or $775 altogether. The Mastodon mine will be worked all winter. In Summit district, a rich strike has been made in the Little Annie mine, showing much free gold. This class of ore is sacked and sent to New York. It fairly bristles with gold. The mine has kept its ten-stamp mill busy the entire season. The Highland Mary Mining Company has a twenty-stamp mill, and a machine for catching tailings and saving fine gold, on the way from the east. It is said that carbonates have been found in Saguache County.

Near Animas Forks the Graham Silver Mining Company has spent $32,000 so far, and is said to have reached a paying basis. It owns fifteen mines, of which the E Pluribus Unum has a twenty-inch pay streak, which assays high. The Prince of Wales, near the Mountain Queen, is owned by the San Juan Bullion Company. Ore runs over 150 ounces, and there are two and a half feet of it.

W. N. Ewing's lixiviation works at Lake City shipped five silver bricks, 886 fine, about Oct. 1st. Coin.

THE LAKE DWELLERS.

How the Prehistoric Inhabitants of Switzerland Lived.

Dr. Clement devoted himself for several years to the investigation of the prehistoric dwellings in Lake Neufchatel, Switzerland. These old inhabitants of Switzerland, perhaps forced to do so by enemies, adopted a safe, if not wholly comfortable, way of living. Some distance from the shore of the shallow lakes they drove piles upon which their houses were built. No doubt these were tolerably substantial structures, well roofed and fully capable of keeping out the cold of a winter among the Alps. Many of these houses, being planted closely together, would be joined by a single platform, and the whole connected with the shore by a narrow bridge, which could easily be destroyed, or possibly lifted, in case of hostile attack. Underneath each house might have been seen the "dug-out" canoes and the racks on which were hung their fish-nets, made of the flax they cultivated on the shore, together with their fishing spears. Their heavy tools were almost wholly of stone—axes polished like glass, set in handles made of part of a deer's antler, and of various forms; hammer-stones for pounding, wedges for splitting lumber, heavy mauls for driving piles; flint spears suitable to be fixed in a strong pole handle; arrow-points for hunting. For lighter objects the horns of the stag and roe-deer were employed. From these they formed handles for their axes, harpoons, chisels, hammers, awls, etc., and sockets for setting these implements in wooden handles; made from them rings, pendants, boxes, drinking-cups, arrow and spear points, needles, picks, etc. The horns of the deer tribe seem to have been a mine of material to these lacustrine artisans, and from being allowed a longer life than now, the antlers obtained a gigantic size never seen at present. The teeth of animals were bored and worn as ornaments, as our Indians wear bears' teeth; but some incisors were put into handles and used as knives, the hard cutting edge having been ground sharp.

THE OCEAN PLACERS OF SAN FRANCISCO.*

These beach sands are reported to have been prospected some fifteen years ago, but though gold was discovered, it was not in quantity sufficient to pay the expense of working. Much attention has of late been directed to the subject of beach-mining, and within two months back the discovery of gold in paying quantities seems to be established beyond doubt, chiefly owing to the exertions of Mr. John Frazer, the new discoverer, and other old miners and prospectors. Since the discovery, the whole of the beach from north of the Ocean Side House, as far south as Point San Pedro, has been taken up by various claimants. Four of the claims are being actively worked at present, and two of them are reported to have together taken out about $800 for two weeks' work.

As a discovery, it is probable that it is not a very rich find; but as far as can be seen at present, there seems to be sufficient gold to pay fair day wages. The pay per man has heretofore varied from $2 to $8, according to the statements of the miners.

THE NATURE OF THE DEPOSIT

is very much what is usual in such cases. There are alternating layers of magnetic iron sand and of common quartz sand upon the higher parts of the beach, while lower down, where the surf breaks, the sand becomes usually coarser and more full of pebbles. Layers of black sand are not infrequently found upon the top of the partly dried, undisturbed sand, owing to the removal of the lighter siliceous material by the action of the wind. As one digs down, the layers alternate white and black, the thickness of each varying from that of a knife-edge to three and six inches. At length, at a depth of from two to four feet, the "hard-pan" is reached. This hard-pan is composed of a sort of clay sandstone, of which more hereafter. Upon this hard-pan is usually found a layer of coarser sand or gravel, which, especially when found in depressions and crevices which favor a concentrating action of the waves, is usually the "best pay" found. But some of the higher layers of black sand are quite rich also. They seem to be formed upon a "false bottom," as the miners call it, by some high tide which makes a new deposit, while its waves are not violent enough to disturb the previous layers.

The concentrating action of the waves upon an inclined beach must be considerable. The configuration of the beach is entirely changed after a storm, and the whole beach as far up as the cliffs is entirely covered by the surf during heavy weather. The action of the water on the sands is essentially the same as in the miner's pan. The quartz sand has a specific gravity of only two and one half, while that of the magnetic oxide of iron is usually about five; hence the separation of these two materials is tolerably complete. The other heavy materials, as gold and platinum, naturally remain with the magnetic sand.

UNDER THE MICROSCOPE,

the black sand shows itself to be composed of more or less perfectly rounded grains of magnetic oxide of iron, with a few silica grains and occasional fragments of what appears to be garnet. Mixed with the black sand is the gold, which, under the microscope, is almost invariably bright, and in only a few cases presents a rusty appearance.

The gold is invariably in the form of oblong or elliptical scales, which are doubly concave, and are usually surrounded by a thickened rim.

A number were measured by Mr. Clark, and gave the following dimensions:

Largest.....	0·0065 inch.	Smallest.....	0·0030 inch.
	0·0060 "		0·0030 "
	0·0070 "		0·0035 "
			0·0035 "

Average thickness of the rims of the scales, 0·001 inch.

A number of measurements made by myself of particles contained in the specimen on exhibition gave the following results:

Gold..... ..... 0·0108 in., 0·0098 in., 0·0049 in.

Platinum occurs also, though not in large quantities. Several fragments are discoverable in the present specimen. The fragments are usually more compact and less flattened than the gold particles. One specimen measured 0·0044 inch.

Now as the particles of magnetic oxide are very nearly of the average diameter of the gold particles, and as, moreover, they are rounded, it becomes a matter of the greatest difficulty to separate them by washing, in spite of their great difference of specific quantities, which are as five to nineteen. The leaf-like form of the gold renders it practically as easily moved by water as the magnetic oxide. It is only by the skillful touch of an old miner that a good "color" can be shown in the pan.

THE METHOD OF TREATING THE ORE,

which varies all the way from nothing up to $25 or $30 per ton, is to either pass it with water down an ordinary blanket sluice, or to use a combination of amalgamated copper plates, riffles, hanging plates, etc., such as the Russel Amalgamator. Both of these methods seem to work to the satisfaction of the parties interested. Accurate experiments as to their relative effectiveness have not been made as yet.

From experiments of my own, I find that the gold amalgamates very freely, as one would naturally infer from its brightness, and freedom from rust. The finer particles, when once allowed to dry, seem to become covered with a film of air, so that when again wet with water they float upon the surface. Another curious fact is the great purity of the gold. Falkner and Reese report the gold which they assayed as from 950 to 953 fine. The miners frequently treat their concentration before amalgamating with a little nitric acid to remove the iron rust (which, by the way, does not seem to be present). It is not probable that this dissolves the silver from the gold, as these concentrations are still wet with salt water. It therefore appears to be more probable that the silver is removed by the long action of the salt water upon those thin scales, which are only a thousandth of an inch thick in their thickest part. However this may be, it is reported to be the purest placer gold that has been found in California.

* Abstract from a paper read before the Chemical Section of the California Academy of Sciences, August 30th, 1878, by S. B. Christy, University of California.

NOTES.

English Capital Going into Canadian Iron Mines.—An English company of capitalists is said to be negotiating for the purchase of the Haycock iron mines in Templeton, about six miles from Ottawa.

The Crook Brothers, of New York City, propose incorporating their Colorado Mining and Smelting Works in a company, the object being to raise further capital for developing their mines and increasing the capacity of the smelting works in the San Juan region.

Resignation of the Nova Scotia Mines Inspector.—The *Monetary Times* of the 11th inst. says: "We observe that Mr. Henry S. Poole has resigned his position as Inspector of Mines for Nova Scotia, to accept that of General Agent of the Acadia Coal Company at Stellarton. Pictou County. Mr. Poole is a competent and painstaking officer."

Gold in Chili.—Panama, October 6.—Gold in paying quantities has been discovered in the southern part of Chili, and already locations have been made by English capitalists of Valparaiso. The gold exists in placers, which are said to be very extensive. There is abundant water to enable hydraulics to be employed in conducting the work of washing out the deposits, and extensive arrangements for canalization, building flumes, etc., to convey the water to the mines have already been commenced.

GENERAL MINING NEWS.

ARIZONA.

THE TOMBSTONE DISTRICT.

The Tucson *Citizen* of October 3d says: "There is probably no mining district on the Pacific Coast that will compare with the Tombstone in richness of mines. Prof. Cox (of Indianapolis), Colonel Tozer, E. A. Corbin, Governor Safford, and R. N. Leatherwood, who have been out eight days, returned on Monday last. They visited the Santa Ritas, Patagonia, Mule Pass, and Tombstone mining districts.

"While at the Patagonia District, Colonel Tozer purchased three mines from Mr. Hocks. One of them, the American, has a 10 to 12-foot vein which assays $150 per ton. The other two are considered good prospects. From that point the party went to Camp Huachuca, thence to the San Pedro River, and from there to Mule Mountains, where Mr. Corbin purchased five mines of Rea & Warren, the Dixie, Wade Hampton, and Robb being among the number. The shafts on the Dixie and Robb mines are down fifteen feet, and show carbonate ore which will go $100 to the ton. The vein is fifteen feet wide.

"From Mule Mountains the party visited the Tombstone District, where Tozer and Leatherwood purchased three mines, the Baltic, Lucifer, and one other, the two assaying on an average $2000 to the ton. They then visited the Gird mines, and all seem to be of one opinion, that it is the most wonderful sight they ever witnessed in mining. The Tough Nut has one shaft down fifteen feet, from which assays were made on the spot, going from $1000 to $27,000. The shaft is 6 by 8, and six cuts have been made from it, the longest twenty-five feet, which shows the same class of almost solid metal. The shaft on the Good Enough is down fifteen feet, in ore assaying, at the lowest average, $200 to $300. On the Contention the shaft is down eighty-five feet, with five feet of metal on the bottom, which the lowest estimate gives $200 to $300 per ton.

"The party speak highly of the Santa Rita mines, as well as those of the Pat-

agonia and Mule Pass districts, and all return home almost astounded at the wonderful mining discoveries in Arizona."

The same authority observes, under date of the 5th inst.:

"The August product of bullion of the Hackberry mine, in Mohave County, was $29,000; of the McCrackin, same county and month, $39,870; of the Tip Top, Yavapai County, same month, $37,628; of the Silver King, Pinal County, same month, $86,000. The San Francisco *Bulletin* says these figures were reported to it by the respective companies. The aggregate is $192,548. This statement does not include the Peck and other large yields, which would likely swell the August product to $250,000, making a yearly rate of $3,000,000.

"Since the Silver King report referred to, its product has increased to an average of $110,000 per month, and the mine never gave such promise of immensity and richness as it does to-day.

"In less than twelve months Pima County will enter the list of bullion producers above any of the counties named. The most careful and moderate estimates are to the effect that the Tough Nut has now $2,500,000 of ore in sight and the richest of prospects beyond sight. Arrangements are already made for reduction works. The Contention has at the lowest and most cautious estimate over $22,000 worth of ore from shafts alone, with splendid prospects opened at various points for 600 feet along the lode."

CALIFORNIA.

THE BODIE DISTRICT.

From the mining summary in the *Standard* of the 9th inst. we extract the following:

"The principal feature of the week is the fine body of ore disclosed and being extracted from the mines of the Consolidated Pacific Company. Various assays and experiments with the 'horn' show high grades of gold-bearing quartz, which is found in abundance. A vein from the size of a razor-blade to 3 feet in width has been encountered in the drift now being run. A remarkable discovery was made a few days ago on the flat, near the Booker mine. While prospecting, a miner broke off a piece of rock from a boulder standing up in the valley, and, with an idea that it bore a mineral appearance, had it assayed. The result was $111 in silver, with no trace of gold. The recent fatal accidents which have occurred in some of our mines are having an effect on superintendents to cause them to look with more care into the matter of ventilation.

"There is no important change to report in the Bodie mine, although the indications are more favorable. In the Bruce winze the ledge is widening, and the ore is very rich. The Bruce stopes continue to yield good ore. The new shaft is down 129 feet, and hereafter more rapid progress will be made in sinking. The bottom is in ledge-matter and looks well. The mill is running steadily, as usual, and every thing is looking well.

"The main shaft of the Standard has now reached a depth of 706 feet; progress during the past week, 6 feet. The rock in the bottom is still very hard. The north drift, 300-foot level, has been advanced 10 feet during the past week; total length, 450 feet. The ledge is 2½ feet wide, of good ore. On last Friday a very good ledge was cut in the west cross-cut, 450-foot level; this cross-cut is now in 85 feet. Progress during the week, 15 feet. The stopes continue to look well."

RICH GOLD DISCOVERIES NEAR MURPHY'S.

The Stockton *Independent* says: "Excitement is rife at Murphy's Camp, Calaveras County, over a rich strike of gold quartz on the north bank of the north fork of the Stanislaus, opposite and three or four miles distant from Murphy's. The quartz lies between the slate and the granite. Among the first discoverers was a miner named Collier, who used to own the celebrated Collier mine at Murphy's. He first took out two tons of rock which were packed up the mountain on mule-back, and taken to a quartz-mill, yielding $500. The next lot of ten tons panned out $6000. The ledge is doubtless the uppermost in the county, as it joins the original granite of the mountains in which no leads exist. It may be, therefore, that from this lead was washed the placer gold found on the Stanislaus below. Several locations have been made on the lead."

COLORADO.

SALE OF THE DOLLY VARDEN MINE.

The Lake City *Silver World* of the 12th inst. says:

"The following will be good news to our miners, as it insures immediate work, backed by abundant capital, on one of the best mines on Henson Creek, and but twelve miles from this city:

"The famous Dolly Varden lode has been sold for a good price, nearly all of which was paid down in cash. The sellers were Peter Houghton and another, and the purchasers Governor Cooke, of Washington; James L. Hill, Major Hurlbert, and John R. Magruder. The Dolly Varden appears to be as rich as the mine of the same name on Mount Bross, Park County. During the past year a large amount of ore has been sold from it that milled from two hundred to one thousand ounces of silver, or from $225 to $1100 per ton. Prof. E. E. Burlingame, of Denver, has just assayed some of the ore from the bottom of the shaft sunk forty feet below the main level, that returned over 17,000 ounces from one lot and 5000 from another. The vein is usually from four to twelve inches wide."

THE MALACHITE COPPER WORKS.

We are in receipt of the following: "The enlargement of the Malachite Copper Reduction Works at Golden has commenced. Mr. Curry has commenced upon the foundation of a new furnace which is to be 75 feet long, the first of several that are to be erected as rapidly as possible. Mr. George H. Kimball has the contract for the erection of large additional buildings in connection with those already built. The buildings already under contract are a furnace building 36×100 feet upon the ground, one story high; an acid building for the chemical manipulation of ores, 25×70 feet, and two stories of 12 feet each, and another building 25×75 feet on the ground, one story high, for the tanks or leaching vats. These three large buildings are to be put up at once, as the company is anxious to get to work as quickly as possible. The material is already arriving, and a large force of men is employed upon the work."

NEVADA.

THE COMSTOCK.

From the Gold Hill *News* of the 9th inst. we extract the following:

"The prospects for opening up another of the richest and largest bonanzas of paying ore in the Sierra Nevada have not been equaled by any thing on the Comstock since the opening up of the 1500 level of the Consolidated Virginia mine in 1873. The incline in that mine is now down over 200 feet on the slope below where the ore was first struck, having reached the 2200 level yesterday afternoon. In excavating for the last set of timbers, ore assaying $300 per ton was encountered, proving conclusively that the ore is not only continuous, but still holds its richness to that depth.

"The angle at which the west clay wall was pitching when last seen, would, if continued to that depth, give a width of over 250 feet to the ore-vein. It is the intention to open the station, and continue the main incline downward without any stop whatever. While this is being done, shutes will be put in, and a drift started westward to cross-cut the ledge, and at the same time another started to connect, at the earliest day possible, with the north winze now being sunk below the 1700 level. To open the station, put in the shutes, and get ready to start these drifts, will take from two to three weeks.

"The south end of this new and splendid ore deposit is being approached as rapidly as men, powder, and machinery can accomplish the feat at three different points. The first of these is by the North Consolidated Virginia shaft, which is now down 1466 feet, and is going directly down on top of the ore. Another is the joint Union Consolidated and Mexican winze which is being sunk below the 1600 level of those mines, and the third point is the north lateral drift on the 2000 level of the Ophir, which is being pushed with all the speed possible to complete a connection with the North Consolidated Virginia shaft.

"A large drift, 8 × 10 feet in size, is being run from the Hale & Norcross shaft, at the depth of 2000 feet, to connect with the Chollar combination shaft.

"The cross-cutting operations in the Belcher, Crown Point, Alta, and other mines, are progressing as usual without any new or valuable developments to report."

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus, and the treating of Precious Metals, etc., from *The Official Gazette of the United States Patent Office*, for the week ending August 27th:

No. of Patent.	*Title of Invention.*	*Name of Inventor.*	*Residence.*
207,342	Machine for Forming Joint Flanges	Frank P. Cady (a)	Cleveland, O.
207,364	Manufacture of White Lead	John C. Martin	Richmond, Eng.
207,365	Stop-Valve	James O. Morse	Englewood, N. J.
207,367	Machine for Rolling Hoes, Picks, etc.	John Pedder	Beaver Falls, Pa.
207,374	Rock-Channeling Machine	Albert G. Webster (b)	Brandon, Vt.
207,376	Ditching Machine	John H. Wilson	Russell Township, Ind.
207,391	Hydraulic Engine	Lucius S. Chandler	Auburn, Me.
207,403	Motor	John F. Driver	Lewisburg, Tenn.
207,413	Process and Apparatus for Manufacturing Water-Gas	Walter A. Goodyear	San Francisco, Cal.
207,420	Process for the Manufacturing of Illuminating-Gas	D. W. Hunt	Oskaloosa, Ia.
207,421	Gas-Exhaust Regulator	Reuben K. Huntoon (c)	Wakefield, Mass.
207,436	Mechanical Telephone	Schuyler S. Parsons	Chatham Center, Ohio.
207,463	Oscillating Steam-Valve	Chas. J. Van Depoele	Detroit, Mich.
207,481	Air-Valve	James H. Blessing	Albany, N. Y.
207,482	Drain-Trap	" "	" "
207,483	Pump-Regulating Valve	" "	" "
207,484	Steam-Trap	" "	" "
207,485	Pump-Regulating Valve	" "	" "
207,488	Current-Wheel	Thomas J. Bottoms	Thomasville, Ga.
207,506	Machine for Drilling and Pumping Oil-Wells	Amasa Dingley	Brooklyn, N. Y.
207,521	Gas-Generator	James W. Hodges	Flushing, N. Y.
207,524	Road-Engine	William L. Hussey	New Vienna, O.
207,542	Steam-Hammer	Thomas R. Morgan	Alliance, O.

RE-ISSUE.

8,390	Rock-Drill, for Boring and Drilling Wells	John P. Summers	Tiffin, O.

(a) Assignor to the Hogan Stamped Elbow Co., same place.
(b) " ½ right to John M. Goodnough, Pittsford, Vt.
(c) " to Allen Governor Co., Boston, Mass.

PROPOSALS.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, with the full name and address of parties soliciting the same:

Rip-rap stone, 36,000 cubic yards; Bangs & Dobbey, Grand Union Hotel, New York	Oct. 19
Laying Pavements in the Cities of Washington and Georgetown, D. C.; R. L. Hoxie, Lieut. Eng'rs, U. S. A., Washington, D. C.	" 19
Grading, Flagging, etc., of Ninth street, Cincinnati; John E. Bell, President Board of Public Works, Cincinnati, O.	" 21
Hides; C. J. Emery, Pay Director, U. S. Navy, Boston, Mass.	" 21
Repair of Wharf at Willet's Point, N. Y.; L. C. Easton, Col. and Asst. Quartermaster, Army Building, New York	" 21
Erection of School House; Board of School Trustees Twenty-first Ward, 146 Grand street, New York	" 21
Furnishing Material and Constructing Water-Works; A. S. Baldwin, Chairman, Jacksonville, Fla.	" 21
Cleaning Streets, Removing Ashes, etc., in the 16th District, Philadelphia; Wm. P. Troth, Chief Clerk Board of Health, Philadelphia, Pa.	" 21
Coal—250 tons Anthracite, 75 tons Bituminous; James Fulton, Pay Director U. S. N., San Francisco, Cal.	" 22
Wood for Fuel, 600 cords Hard, 100 Kindling; Alex. J. Perry, Dept. Q. Gen. U. S. A., Governor's Island, N. Y.	" 23
Constructing Culverts or Drains 763 ft.; John E. Bell, Prest. Board of Public Works, Cincinnati, O.	" 24
Horse and Mule Shoes and Horseshoe Nails; L. C. Easton, Col. and Ass't Quartermaster Army B'ld, New York	" 28
Enlarging Grammar School No. 51, on West Forty-fourth street; Board of Trustees Twenty-second Ward; Board of Education, N. Y. City	" 28
Naval Supplies—White Ash, Hardware, Belting and Packing, and Sheet Rubber; A. H. Gilman, Pay Inspector U. S. Navy, 29 Broadway, City	" 28
Stores and Chandlery to Public Ice-Boats for year 1879; C. A. Griscom, 115 Walnut st., Philadelphia	" 29
Coal, 6000 tons Clearfield; C. A. Griscom, 115 Walnut st., Philadelphia	" 29
Dredging Rappahannock and Chickahominy Rivers, Virginia; S. T. Abert, U. S. C. E., Washington, D. C.	" 30
Coal—300 tons Lackawanna, steamboat size; A. H. Gilman, Pay Inspector U. S. Navy, 29 Broadway	" 30
Boring Artesian Wells; Committee Artesian Wells and Water Works, Charleston, S. C.	Nov. 1
Grading, Flagging, etc., of Gest st., Cincinnati; John E. Bell, Pres't Board of Public Works, Cincinnati, O.	" 4
Grading, Macadamizing, and Constructing Drains, Tremont st., Cincinnati; John E. Bell, Cincinnati	" 4
Grading, Macadamizing and Constructing Drains, Considine ave., Cincinnati; John E. Bell, Cincinnati	" 4
The same to Charles st., Cincinnati; John E. Bell, Cincinnati	" 4
Grading, Curbing, Constructing Culverts, etc., Third avenue, Cincinnati; John E. Bell, Cincinnati	" 4
Weather-Boarding Bridge, Port Clinton, also for Slating the same; John P. Powers, Com., Pottsville, Pa.	" 4
50,000 Cross-ties for Denver and Rio Grande R. R.; R. F. Weitbrec, Treas. D. and Rio G. R. R., Colorado Springs, Col.	During the Winter
Railway Construction and Working, 2000 miles; F. Braun, Sec'y Dept. of Public Works, Ottawa, Canada	Dec. 1
Railway Construction, 310 Miles; F. Braun, Secretary of Department of Public Works, Ottawa, Canada	Jan. 1, 1879
Gas Illumination of Rio de Janeiro, Brazil; Salvador de Mendonca, Brazilian Consul-General, 42 B'way, New York	March, 1879
Locks and Keys for Mail Bags; D. M. Key, Postmaster General, Washington, D. C.	March 20, "
Coal for Schools of Youngstown Board of Education, Youngstown, O.	March 29, 1879

WE LEARN THAT the French government is laying out a very broad and gigantic scheme of railway construction adapted to the wants of various sections. With the vast sum of $100,000,000, which it proposes to borrow every year for ten years, the ordinary lines of 4 feet 9 inches gauge are to be increased and pushed into districts which are at present without them; next a meter gauge is to be introduced for ten productive districts; and, finally, steam tramways, with a gauge of 2 feet 6 inches, are to be laid on most of the ordinary highways. The speed on these lines is to be about 9½ miles an hour, and on the meter gauge about 13; the estimated cost is $12,800 per mile on tramways and $20,480 on the meter.

IT IS PROPOSED to build a railroad from Adamstown, in Lancaster County, Pa., northward about five miles to Fritztown, on the Reading and Columbia road. The project also includes an extension from Fritztown northward through the Spring Brook and Tulpehocken valleys to Bernville and Strausstown, about 15 miles.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending Oct. 12th, and years from January 1st:

Tons of 2240 lbs.	1878.		1877.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co..	49,351	1,587,301	.....	1,284,546
D. L. & W. RR. Co.	49,729	1,580,465	11,337	1,333,095
Penn. Coal Co.....	24,453	664,930	20,564	743,106
L. V. RR. Co.....	15,021	603,336	24,288	647,544
P. & N. Y. RR. Co..	813	24,373	.....	32,931
C. RR. of N. J.....	35,811	727,626	38,023	934,079
Penn. Canal Co....	13,271	271,024	8,185	251,816
	188,450	5,459,035	102,397	5,227,117
Lehigh Region.				
L. V. RR. Co.....	53,744	1,807,911	88,573	2,567,793
C. RR. of N. J.....	44,390	992,416	39,028	1,149,792
D. H. & W. B. RR..	1,342	26,264	1,416	21,012
	99,476	2,826,591	129,017	3,738,597
Schuylkill Region.				
P. & R. RR. Co.....	184,723	3,764,156	177,303	5,259,390
Shamokin & Lykens Val....	25,735	565,162	24,064	565,673
	210,458	4,329,318	201,367	5,825,063
Sullivan Region.				
Sul. & Erie RR. Co.	1,112	25,746	718	14,718
Total	499,496	12,640,690	433,499	14,805,495
Increase.....	65,997	.....	.....	.....
Decrease	.....	2,164,805	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Coals Cleared on the Canals of the State of New York for the week ending Oct. 14th, and year from the opening of navigation:

Tons of 2000 lbs.	1878.		1877.	
	Week.	Year.	Week.	Year.
Anthracite	17,755	468,794	31,532	772,270
Bituminous.....	6,581	143,705	7,506	222,960
Total amount cleared	24,336	612,499	39,038	995,230

The increase of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania railroads amounts to 59,012 tons, as compared with the corresponding period in 1877.

Belvidere Delaware Railroad Report for week ending Oct. 12th:

	Week.	Year. 1878.	Year. 1877.
Coal for shipment at Coal Port (Trenton).....	878	8,908	13,139
Coal for shipment at South Amboy	2,288	336,787	439,769
Coal for distribution.....	5,114	135,954	146,404
Coal for Company's use.....	1,844	63,350	56,182

The Production of Bituminous Coal for the week ending Oct. 12th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2,240 lb.....	39,760	1,249,783
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	6,511	237,451
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	3,891	115,998
*East Broad Top.....	1,310	43,230
Clearfield Region, Pa.		
*Snow Shoe.....	397	17,108
*Tyrone and Clearfield.....	25,618	911,524
Allegheny Region, Pa.		
*Pennsylvania R. R	3,198	145,250
Pittsburg Region, Pa.		
*West Penn R. R.....	3,853	133,738
*Southwest Penn. R. R.....	667	19,018
*Penn & Westmoreland gas coal, Pa. R. R.....	15,314	476,474
*Pennsylvania R. R.....	6,561	294,241

*For the week ending Sept. 28th.

The Production of Coke for the week ending Sept. 28th:

Tons of 2000 lbs.	Week.	Year.
West Penn R. R....	1,607	61,515
Southwest Penn. R. R.....	12,719	556,418
Penn. & Westmoreland Region, Pa. R. R.	1,947	55,515
Pittsburg, Penn. R. R.....	8,870	80,823
Total...	25,143	754,265

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Oct. 18, 1878.

Anthracite.

The cloud that overhung the coal trade at our last has not lessened in the least. An artificial sun has been created, but the impending storm still exists. The Anthracite Board of Control met in this city on Wednesday, and all of the interests were represented. The object of the combination of this year was to limit the tonnage, and the intention was that each interest should do a business equal to its allotted proportion of the whole. Some of the companies were well sold up, while others had liberal stocks of coal on hand. As in all previous combinations, those whose business was most curtailed feel that an injustice is done them; their coal is either superior in quality or their ability to dispose of it is greater than that of their associates; hence, they naturally feel that they are entitled to a greater proportion of the whole business. To prevent a public disruption of the combination, the tonnage for this month, which was fixed in September at 1,200,000 tons, was increased 600,000, and the allotment for November was fixed at 1,200,000 tons. By the increased allotment for this month, and the probable increase in November (the precedent for doing so being established), the full practical advantages of the combination are taken away; for earlier in the year the cry of those who were behind in disposing of their coal was: "Let them sell; when they have filled their quota, we shall sell our coal and get full prices." The prospects are now that, unless an unexpected increase in the demand sets in, some of these companies will be carrying large stocks when the combination expires by limitation at the end of the year, as it now promises to do. At the September meeting it was voted by the Board of Control that the existing arrangement of combination be continued until April 1st, Dr. G. B. Linderman voting subject to the ratification of the Lehigh operators. At the meeting on Wednesday Dr. Linderman announced, as we stated in our last issue would be the case, that his constituents had refused to ratify his action, and therefore the vote of the Board of Control at its previous meeting was rescinded. As has always been the case, the Lehigh Valley R.R. interest appears to be the dissatisfied party, and demands a largely increased tonnage. We question if there be not at least one more interest that will make a similar demand, while still another will hardly submit to a reduction. The question resolves itself into, Who is willing to close down entirely next year? The inability to allot seven fifths in the next programme will unquestionably prove a problem as embarrassing as how to meet fixed charges. All hopes, however, do not appear to be given up that something may "turn up" to bring about united action during 1879. To accomplish this object, a committee, composed of Messrs. Dickson and Gowen, was appointed for the purpose of bringing together the several interests. This last combination programme, like its predecessors, has proved a failure. So many plans have been tried that there appears to be but one more left open, viz., that of pooling all the coal, and this, from the fact that it would dispense with a large number of assistants, would meet with unlimited opposition, and, we are told, is quite "impracticable." The situation is certainly critical for the coal companies, but we are unable to see how a combination next year can effect a permanent cure for the ills that afflict them.

The remarkably mild weather that has continued up to the present time very materially interferes with the demand for coal for domestic uses, while that uncertainty as to the future actions of the combination will prevent buyers from supplying more than pressing wants. It is conceded, almost without exception, that prices will not probably go higher this year, while the general belief is that they will decline. Unless some action be promptly taken by the combination that will assure the public of its stability, prices will most certainly decline, and as the public has been deceived so often, it will be almost impossible to enlist its confidence again.

As showing the feeling in Philadelphia, we quote the following from the Philadelphia *Ledger* of October 14th:

"The figures of the trade, as weekly and monthly published, very plainly show that the New York parties to the compact have undue advantage, to the cost and prejudice of the Philadelphia parties to the compact. Thus, the four Philadelphia companies—the Reading Railroad, the Lehigh Valley Railroad, the Pennsylvania Railroad, and the Lehigh Navigation—show an aggregate loss under their respective percentages of 2,857,762 tons, to the 5th inst., as compared with their aggregate tonnage to corresponding date last year, while two of the New York companies—the Delaware, Lackawanna, and Western and the Delaware and Hudson Canal—show an aggregate increase of 167,794 tons to the same date, notwithstanding the year's output so far is nearly two and three quarter millions of tons less than in 1877. This is inequitable, and so manifestly unjust that no new contract working like results can be assented to by the Philadelphia companies."

We have several times called attention to the effect of the combination prices upon the demand for anthracite in iron making, as illustrating one of the suicidal results of this method of regulating trade. Some weeks ago we noted the fact that one of the Crown Point furnaces was using coke along with anthracite. Now we learn that these furnaces have made contract for a year's supply of coke at $5.50, as against anthracite at $4.50 per ton. The smallest of these two furnaces (16′×65′) using coke and anthracite is producing 30 per cent more iron than the large furnace (18′×65′) which is using anthracite exclusively, ore and limestone being the same in each case.

The Greenwood Iron Works, in New Jersey, has also made a contract for coke for a preliminary trial, which, if successful, will lead to the permanent adoption of coke in that and other furnaces in the same district. Coke is now being delivered free on board cars at Connelsville at one dollar per ton. Efforts, which promise to be successful, are being made to create a market on the lakes for Connelsville coke.

The production of anthracite coal last week was 499,496 tons, as against 424,500 tons the previous week, and 433,499 tons the corresponding week of 1877. The total production from January 1st to October 12th was 12,640,690 tons, as compared with 14,805,495 tons for the like period of last year, showing a falling off this year of 2,164,805 tons.

Bituminous.

The business in this class of coal is attracting but little attention, yet there is a liberal quantity being moved, although at prices far from satisfactory to producers. Shipments have been resumed by the Chesapeake & Ohio Canal. Vessels at Georgetown are a little scarce.

New York.

Wholesale Prices of Anthracite Coal for October Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
Lackawana, at Weehawken	3 60	3 60	3 65	3 80	4 20	3 65
*Pittston, at Newburg.....	3 55	3 55	3 65	3 75	4 05	3 50
L. Val. Coal Co., at Amboy.	.....	3 75	3 50	3 60	4 10	3 50
Kingston at Hoboken.....	3 50	3 60	3 70	3 85	4 20	3 60
Wilkes-Barre at Pt. Johnson	3 60	3 60	3 70	3 85	4 20	3 60
Plymouth Red Ash at Port Johnson.....	.....	.....	3 70	3 85	4 30	3 60
Swoyers at Eliz. Pt. or S.A...	3 75	3 75	3 60	3 75	4 20	3 60
LEHIGH COAL.						
L. V. Coal Co., at P. Amboy.	4 10	...	3 90	3 90	4 10	3 50
Cross Creek, at Port John.	4 00	3 90	3 90	3 90	4 20	3 60
Buck Mount. Vein at Elizabeth Port or S. A.....	4 25	4 00	3 90	3 90	4 20	3 60
SCHUYLKILL COAL						
At Pt. Richmond, Phila.						
Hard White Ash.	3 50	3 50	3 50	3 55	3 95	3 40
Free-burning W. Ash. ...,	.....	.....	3 40	3 50	3 95	3 30
Schuylkill Red Ash.....	.....	.....	.....	3 75	4 00	3 30
Lorberry.....	.....	.....	3 80	3 95	4 00	3 40
Lykens Valley Vein.....	.....	.....	3 80	3 95	4 00	3 60
†*Alongside in N.Y. Harbor.*						
Hard White Ash	4 20	4 20	4 20	4 20	4 40	3 80
Free-burning W. Ash.....	.....	.....	3 90	4 05	4 40	3 80
Schuylkill Red Ash.....	.....	.....	.....	4 35	4 50	3 90
Lorberry.....	.....	.....	.....	4 60	4 60	4 25
Lykens Valley Vein.....	.....	.....	4 60	4 70	4 70	4 35

*Fifty cents per ton additional for delivery in New York.

†On coal delivered f. o. b. at the Philadelphia and Reading Coal and Iron Co.'s Wharf at Williamsburgh, the current date of harbor freight will be allowed from the prices here given.

Wholesale Prices of Bituminous Coal.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
DOMESTIC GAS COALS.		
Westmoreland and Penn.....	$4 25	.....
At Greenwich, Philadelphia	....	$5 50
At S. Amboy.	5 00	5 50
Kanawha at Richmond	4 10	5 40
Red Bank Cannel, Pa., at Philadelphia..	8 00	8 50
Youghiogheny, Waverly Co., at Balt ...	4 00	5 65
Despard, West Va.....	4 50	6 00
Murphy Run, West Va., at Baltimore. ..	3 75	5 85
Fairmount, West Va., " " ...	3 75	5 70
Newburg Orrel. Md. " " ...	3 75	6 00
Cannelton Cannel, West Va	....	10 00
" Splint " at Richmond.	6 00	7 00
" Gas Coal at Richmond	4 00	5 65
Peytona Cannel, W. Va.. at Richmond...	....	10 00
MANUFACTURING AND STEAM COALS.		
Cumberland at Georgetown and Alexandria	2 75@2 90	4 35@4 50
Cumberland, at Baltimore.....	2 90@3 00	4 35@4 50
Cl'rfi'd "Eureka" and "Franklin."		
At mines.....	0 75	....
At Baltimore.....	3 25	4 50
At Philadelphia.....	3 25	4 50
FOREIGN GAS COALS.	Sterling.	Am. cur'ncy
Newcastle, at Newcastle-on Tyne.....	7s.6d.	$2 50@ $3 50
Liv. House Orrel, at Liv.....	25s.	13 00
Ince Hall Cannel " ....,	35s.6d.	18 00
" Gas Cannel "	25s.6d.	10 00@ 10 50
Scotch Gas Cannel, at Glasgow, nominal.....	25s.	7 50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1 75	$4 50
Caledonia, at Pt. Caledonia.	1 50	4 25
Glace Bay at Glace Bay....	1 50	4 00
Lingan, at Lingan Bay.....	1 50	....
Intern'l Mines, at Sydney...	1 75	4 50
Pictou, Vale Mines, at Pictou	2 00	4 70

Retail Prices.

Per ton of 2000 lbs,

Anthracite.

	G. & Egg.	Stove.	Chest.
Pittston coal delivered	$5 00	$5 00	$5 00
Lack. coal, delivered below 59th St.	4 50	4 75	4 50

Bituminous.

Liv. House Orrel	$18 00	American Orrel	$11 00
Liv. House Cannel	18 00	Red Bank Cannel	7 00
Am. "	11 00	Cumberland	9 00
Ca'n'l't'n Bl'k, or splint.	10 00		

Baltimore. Oct. 15, 1878.

[Specially reported.]

Wholesale Prices per ton of 2240 lbs.

In cars at Depot N. C. R. R.

HARD WHITE ASH, FREE-BURNING WHITE ASH, SHAMOKIN, ETC.

Lump and Steamboat	$3.85	Stove	$4.35
Broken	4.00	Chestnut	3.85
Egg	4.10		

LYKENS VALLEY RED ASH.

Broken	$4.15	Stove	$4.45
Egg	4.30	Chestnut	3.90

Buffalo. Oct. 15, 1878.

[Specially reported by C. M. UNDERHILL.]

	Delivered at				
	Elmira.	Ithaca.	Syracuse	Rochester.	Oswego
	Afloat.	Afloat.	Afloat.	Afloat.	F. O. B
Lump					
Grate	$3.75	$3.60	$3.60	$3.85	$4.05
Egg	3.85	3.70	3.70	3.95	4.15
Stove	3.95	3.95	3.95	4.20	4.40
Nut	3.85	3.85	3.60	3.85	3.90

	Delivered at					
	Sodus Point.	Charlotte.	Erie.	Buffalo.		
	F.O.B.	F.O.B.	F. O. B.	Afloat.	F. O. B.	Ret. Del.
Lump						
Grate	$4.05	$4.05	$4.55	$4.15	$4.55	$5.15
Egg	4.15	4.15	4.65	4.25	4.65	5.25
Stove	4.40	4.40	4.90	4.50	4.90	5.50
Nut	3.90	3.90	4.40	4.00	4.40	5.00

Cost of coal from Erie, Oswego, Sodus Point or Charlotte for Western market, same as if shipped from Buffalo.

BLOSSBURG COAL.

Per ton of 2000 lbs.

	To dealers.	To consumers.
By car or boat	$3.25	$3.25
In yard	3.40	3.60
In car		3.65
Delivered		4 00

[Specially reported by E. L. HEDSTROM.]

Until further notice, the following will be the prices for Scranton, Wyoming, Lehigh, and Blossburg coals, per ton of 2000 pounds, delivered free on board vessels at Buffalo N. Y.:

	Lump.	Grate.	Egg.	Stove.	Nut.
Scranton	....	$4.55	$4.65	$4.90	$4.40
Wyoming	....	4.55	4.65	4.90	4.40
Lehigh (Sugar Loaf)	....	....	....	....	....

Blossburg, $3.50, F. O. B.

	To dealers.		Retail.
	On cars or boats.	In yard, screened.	Delivered.
Grate	$4.15	$4.25	$5.15
Egg	4.25	4.35	5.25
Stove	4.50	4.60	5.50
Chestnut	4.00	4.10	5.00
Lehigh Lump	....	....	....
Blossburg	3.25	3.40	4.00

Chicago. Oct. 15, 1878.

[Specially reported by Messrs. RENO & LITTLE.]

The following are the present prices of coal per ton of 2000 lbs. delivered:

Retail prices of coal delivered per ton of 2000 lbs

Lackawanna Stove	$6.25	Erie and Brier Hill	$5.00
" Chestnut	6.00	Wilm'gton & Ill.	$3 00@3.50
" Grate	6.00	Blossburg	5.50@6.00
" Egg	6.00	Piedmont	7.00

Stocks of all kinds of coal liberal. Trade dull.

Cincinnati. Oct. 15, 1878.

[Specially reported by the Consolidated Coal & Mining Co.]

Per bushel of 72 lbs.

	Retail delivered.	Wholesale afloat.
Youghiogheny	11c.	7½c.
Camden	9c.	5½c
Cannel	17@18c.	13c.

Anthracite, delivered, $7@$8 per ton of 2,000 lbs.

Cleveland. Oct. 15, 1878.

[Specially reported by F. A. BATES, Esq.]

Per ton of 2000 lbs. f.o.b. vessels.

WHOLESALE.

Brier Hill (Church Hill)	$3.25
" " No. 2 Grades	3 00@3.15
Monday Creek	2.60
Straitsville Lower Vein	2.60
Hocking Valley	2.60
Massillon (No. 2 grades 15 cents less)	2.60
Tuscarawas Valley	2.25
Columbiana	2.25
Nut coal, various grades	1.70@2.00
Screenings " "	1.25@1.50
Youghiogheny gas coals	3 60

RETAIL TRADE.

	1 ton.	10 tons.
Brier Hill lump	$4 00	3 75
Massillon and Mineral Ridge lump	3 75	3 50
" " " " nut	3 50	3 25
Straitsville Lower Vein and Hocking lump.	3 60	3 35
" " " " nut	3 40	3 15
Rich Hill lump	3 50	3 35
" " nut	3 25	3 00
Columbiana, lump	3 00	2 75
" nut	2 50	2 35
Lacka'a., Wilkes-Barre and Pittston egg and grate	5 50	5 25
Lackawanna, Wilkes-Barre and Pittston stove	5 85	5 60
" " " chestnut	5 25	5 00

Lehigh $1 per ton higher.

Hamilton, Ont. Oct. 15, 1878.

[Specially reported by H. BARNARD.]

Retail prices delivered per ton of 2000 lbs.

Scr. or Wilkes-B. Grate.	$4.75	Lehigh Lump	$6.00
" " Egg	4.75	Brier Hill	5.00
" " Stove.	5.25	Massillon	4.50
" " Nut.	4.75	Smithing	5.50

From wharf or yard to the trade, 50c. per ton additional. Afloat by cargo per canal barge, 15c. per ton less than in cars at depot.

Indianapolis. Oct. 15, 1878.

[Specially reported by Messrs. COBB & BRANHAM.]

WHOLESALE BITUMINOUS.

On board cars, per ton of 2000 lbs.

White River	None in market	Hocking Valley	4.20
Brazil Block	$2.10	Raymond City	3.40
Highland Grate	1.85	Youghiogheny	3.70
Indiana Cannel	3.65	Blossburg (smithing)	5.25
Peytona	5.70	Piedmont "	5.25

Per car, 12 tons.

Block coal, nut	$15.00	Block Slack	$12.00
Highland, "	14.00		

RETAIL BITUMINOUS.

Delivered per bushel of 70 lbs.

Raymond City	14c.	Block Nut, steam use	6c.
Brazil Block	10	" Slack, "	5
Highland Grate	9	Virginia Cannel	24
Block Nut, domestic use.	10	Indiana Cannel	15
Highland Nut, " "	11	Youghiogheny	15
" " steam.	8	Blossburg	24

GAS COKE.

Per bushel, measure containing 2888 cubic inches.

Retail, crushed.	8c.	Wholesale, lump	6¼c.
" lump	7	" crushed	7½

ANTHRACITE.

Per ton of 2000 lbs.

Wholesale on Cars.		*Retail delivered.*	
Wilkes-Barre, all sizes.	$5 50	Wilkes-Barre, all sizes.	$6.50
Lackawanna, "	5.75	Lackawanna, "	6.50
Lehigh "	6.75	Lehigh, "	7.50

Louisville. Oct. 15, 1878.

[Specially reported by Messrs. BYRNE & SPEED.]

The demand at present is very good, in the city and on railroads.

Wholesale per bushel of 72 lbs.

Pittsburg	6c.	Kentucky, in river	5½c.
Raymond City	6	Kentucky, on cars	6

Retail.

Pittsburg	10c.	City made Coke	7c.
Raymond City	9	Gas Coke	8c.
Kentucky	8	Cannel Coal	17
Hard and soft Coke.	8	Anthracite, per ton	$7 00

Montreal. Oct. 15, 1878.

[Specially reported by Messrs. ROBERT C. ADAMS & Co.]

Wholesale per 2240 lbs.

Scotch Steam	$3.50	Cape Breton Steam	$2.75
Pictou	3.25	Newcastle Smith's	4.00

Anthracite at retail, per 2000 lbs. delivered.

Stove	$5.50	Chestnut	$5.00
Egg	5.15		

Milwaukee. Oct. 15, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

Retail price per ton of 2000 lbs.

Lehigh prepared, chippings	@$7.00
" " lump	@ 7.00
Lackawanna prepared (all sizes)	@ 6.00
Briar Hill	@ 5.00
Steam cokes	$3.75@ 4.75

New Orleans. Oct. 14, 1878.

[Specially reported by Messrs. C. A. MILTENBERGER & Co.

PITTSBURG COAL.

At wholesale (by boat-load)	27c	per bbl. of	180 lbs.
To steamboats	45c.	"	"
" manufactories	45c.	"	"
" families	50c.	"	"
In hhds. (for shipment)	$5.00 per hhd	from 5 to 6	bbls.

ANTHRACITE COAL.

Per ton of 2000 lbs.

At wholesale	$7.00 to $8.00
To families etc.	9 00 to 10.00

ST. BERNARD (KY.) COAL.

To steamboats	40c.	per bbl. of	180 lbs.
" families	45c.	"	"
Virginia cannel to families	$1.00	"	"

Philadelphia. Oct. 17, 1878.

The Schuylkill region will start next Monday to fill the extra quota agreed upon for this month. The action of the Board of Control has certainly done one thing, viz., destroyed what little confidence some had in it. It seems now evident that when a mistake is made by having too large a monthly quota, the board declines to alter it; but when they think it too small, they do not hesitate to do so. The action of the board in September, which was said to have been unanimous, about a continuance until April next, has since proved not to have been so; and while it is certain that the combination will hold for this year, it remains unsettled beyond that time, and the parties who, for speculative or other purposes, are agitating and circulating all sorts of rumors can continue to do so and prevent any great activity in the trade even if circumstances should occur to create a good demand. We think that the sanguine expectations of many about the balance of the season will not be realized. However, there is no doubt that for Schuylkill and Lehigh coals the quota of October was entirely too small.

Port Richmond is very bare of coal.

Pittston, Pa. Oct. 15, 1878.

Pennsylvania Coal Company's Coal in Yard.

Retail per ton of 2,000 lb.

Lump, Egg, and Stove	$2 25
Chestnut	2 00
Pea	1 00

Delivered, 50 cents per ton additional.

Richmond. Oct, 15, 1878.

[Specially reported by S. H. HAWES, Dealer in Coal.]

Per ton of 2240 lbs. f.o.b.

Kanawha Cannel	$9.00	New River Bituminous	$3.30
Coalburg Splint	4.50	Clover Hill Coal	2.50
Lewiston "	4.50	Norwood Gas and Steam Coal	2.70
Kanawha Gas Coal	4.10		

Sandusky. Oct. 15, 1878.

[Specially reported by Messrs. BLACK & CLARKE, Agents Con Coal and Mining Company.]

Per ton of 2000 lbs.

ANTHRACITE.

	Grate.	Egg.	Stove.	Chest
Lehigh	$6 00	$6 00	$6 25	$5 75
Wilkes-Barre	4 80	4 90	5 15	4 65
Pittston	4 80	4 90	5 15	4 65

BITUMINOUS.

Massillon	$2 85	Straitsville	$2 50
Hocking Valley	2 50	Piedmont	4 10

Prices retailed delivered 50c.@75c. above car prices.

San Francisco. Oct. 12, 1878.

COAL.—Imports from January 1st to September 1st, 1878:

	Tons.		Tons.
Anthracite	9,472	English	19,612
Australian	90,065	Mt. Diablo	65,401
Coos Bay	21,677	Rocky Mountain	371
Cumberland	802	Ione	621
Bellingham Bay	2,820	Carbondale	2,024
Vancouver Island	87,780	Ounalaska	300
Seattle	69,645		

The arrivals thus far during the month have been liberal, yet the great bulk of the receipts came to hand under prior engagement. The cargo of 1500 tons Liverpool steam, per ship W. H. Marcy, has been sold upon terms withheld, but generally believed to be in the neighborhood of $6.62½. The arrivals for the week embrace the following: Per ship County of Cardigan, from Sydney, 1361 tons shale, and 500 tons coal; Lizzie Williams, 1349 tons Seattle; Arcata, 360 tons Coos Bay; Gussie Telfair, 306 tons same; Modoc, 654 tons Seattle, and Aureola, 1300 tons same. The general market exhibits a good degree of strength, when we consider the large and constant additions made to our supplies from British Columbia mines and those of Washington Territory, notably the Seattle mines. The *Astorian* wants us to say something about the extensive and yet unexplored mines in Oregon. This we will be most happy to do when we can find any facts or figures upon which to base a few remarks calling attention of capitalists to the same. Our quotations of the different coals will be found elsewhere, and are as near correct as can be made without being advised of actual cargo sales. Anthracite and Cumberland are in considerable stock, and can be bought from ship in lots to suit at about the nominal cargo price. The bark P. J. Carlton, from Nanaimo, brought 1645 tons.—*Commercial Bulletin.*

St. Louis. Oct. 15, 1878.

Reported by JAMES J. SYLVESTER, Secretary of the Anthracite Coal Association.]

Retail prices, delivered. Ton of 2000 lbs.

ANTHRACITE.

	Per ton.		Per ton.
Lackawanna	$7.50@	Lehigh	$8.50@
Wilkes-Barre	7.50@	Connells. Coke.	6.00@
Schuylkill	7.50@	Blossburg	7.75@

Oct. 8, 1878.

[Specially reported by Messrs. LEWIS P. HARVEY & Co.]

BITUMINOUS.

Big Muddy	$3.65	Piedmont	$7.25
Indiana Block.	3.25	Pittsburg	4.35
Illinois Coals	2.25@2.50	Peytona	7.50
Blossburg	7.75	Lehigh Val. Ant.	7.50@8.00

Toledo. Oct. 15, 1878.

[Specially reported by Messrs. GOSLINE & BARBOUR.]

We quote the following as the present prices for coal, delivered on cars here, per ton of 2000 lbs.:

Ton of 2000 lbs.

	Grate.	Egg.	Stove.	Chest.
Pittston	$5.05	$5.15	$5.40	$4.90
Wilkes-Barre	5.05	5.15	5.40	4.90
Lackawanna	5.05	5.15	5.40	4.90

Lehigh lump, $5.75.

The remaining grades same as quoted in your last issue, viz.:

Ton of 2000 lbs.

Straitsville lump	$2 60	Massillon nut	$2 40
" nut	2 25	Willow Bank lump	2 85
Shawnee lump	2 60	" nut	2 40
" nut	2 25	Cumberland	5 00
Hocking Valley lump.	2 60	Blossburg	4 60
" nut	2 25	Morris Run	4 93
Massillon lump	2 85	Gas Coal	3 ,25

Retail prices, delivered in the city, are: Stove, $500; Grate, Egg, and Chestnut, $5.

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to Oct. 17th, 1878.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Albany	.....	1.60	.....
Alexandria	1.50	.....	.....
Augusta	.....	1.40	.....
Baltimore	40@40†	35	.....
Bangor, Me	.....	1.40	90
Bath, Me	.....	1.25	90
Beverly, Mass	.....	.....	85
Boston, Mass	1.20@1.15‖	1.50	90§
Bridgeport, Conn.	95	1.30	60
Bristol, R. I	1.27½	.....	70
Brooklyn	85@90	.....	.....
Cambridge, Mass.	1.22‖	.....	90
Charleston	95@90	.....	90
Cambridgeport	1.32@1.25	.....	90
Charlestown	1.10§	.....	90
Chelsea	1.10	.....	.....
East Cambridge	1.31	.....	90
Fall River	1.05	1.30	70
Galveston	2.25	2.75	.....
Georgetown	50	.....	.....
Halifax	.....	.....	1.50
Hartford	1.45@1.50	1.80	.....
Hingham	1.25	.....	.....
Hoboken	1.15	1.15	35
Hudson	1.45	1.40	.....
Lynn	1.25	.....	90
Medford	1.10§	.....	.....
Milton	1.15	.....	.....
Middletown	.....	.....	90
Nantucket, Mass.	.....	.....	90
Newbern	.....	.....	.....
New Bedford	.....	1.50	70
Newburyport	.....	1.50	1.00
New Haven	.....	1.30	60
New London	1.07†	1.30	60
Newport	1.05	.....	70
New York	90†@85@88	1.25	35
Newark	.....	1.35	.....
Norfolk, Va	50	45	.....
Norwich	1.12@1.00‡	1.45	65
Norwalk, Conn	95@1.00	1.35	55
Pawtucket	1.10‡	1.40	75
Petersburg	70@75	.....	.....
Philadelphia	.....	55	.....
Portland	95†	1.50	90
Portsmouth, N.H.	.....	1.50	1.00
Providence	1.20	1.30	85@90
Quincy Point	.....	.....	90
Richmond, Va	60	.....	.....
Rockland	.....	.....	90
Roxbury	.....	.....	95§
Saco	1.40	.....	1.10
Salem, Mass	1.15@1.28	1.40	90
Salisbury	1.25‡	.....	.....
Savannah	1.00	.....	.....
Staten Island	91	.....	20
Trenton	.....	1.10	.....
Troy	.....	1.60	.....
Wareham	.....	1.50	.....
Washington	50‖	60	.....
Williamsburg	90	.....	35
Wilmington	1.00	55	.....

Alexandria and Georgetown to Boston, $1.45. Washington to Wareham, $1.45. New York to Boston, 90@95.

And discharging and towing. † And discharging. ‡ And towing. § 3c. per bridge extra. ¶ And pilotage. ‖ 1.20 to wharf.

Rates of Freight on Anthracite Coal to Tide-Water Ports.

SCHUYLKILL COALS. Per ton of 2,240 lb.	From * Pine Grove.	From *Tamaqua.	From * Schuylkill Haven.	From Port Clinton.
To *Port Richmond*, via P. & R. R. R., Main Line, for shipment	1.95	1.90	1.75	.....
To *Harrisburg*, via Lebanon Valley Branch	1.29	1.85	1.70	.....
To *Allentown*, via East Pennsylvania Branch	1.59	1.74	1.59	.....
To *Lancaster*, and Points on Lancaster Branch, via R. & C. R. R.	1.71	1.66	1.51	.....
To *Dauphin*, via Schuylkill and Susquehanna Branch	1.09	1.52	1.37	.....
To *Slatedale Junction*, via Berks and Lehigh ranch	1.74	1.69	1.54	.....
To *Lebanon*, via Lebanon and Tremont Branch	98	.....	.....	.....
To *Philadelphia*, via Schuylkill Canal, including freight and charges for the use of cars and barges, and for tolls (exclusive of cost of loading, trimming and unloading)	.....	.....	1.65	1.55
To *New York*, via Schuylkill Canal, including freight and charges for the use of cars and barges and tolls on the Schuylkill Canal and Delaware & Raritan Canal and the towing between Fairmount and Bordentown and between New Brunswick and New York (exclusive of cost of loading, trimming and unloading)	.....	.....	2 50	2 4

From *Tamanend*† to *Catawissa, McAuley, Mainville, Rupert* and *Danville*, via Catawissa & Williamsport Branch Railroad 100

From *Tamanend*† to *Williamsport, Hall's* and *Montoursville*, via Catawissa & Williamsport Branch Railroad 135

*For shipment via Main Road or Schuylkill Canal, one and one-half cents per ton per mile, and two cents per ton additional to Schuylkill Haven, Pine Grove, Tamaqua or Port Clinton, for Canal, as the case may be. Provided no charge shall be less that 15 cents, or greater than 45 cents per ton

† Coal sent to points on the Catawissa and Williamsport branch will be charged one and one half cents per ton per mile, and two cents per ton additional to Tamanend.

A deduction of 20 per cent will be made from the above rates upon all coal consigned for actual consumption at iron works upon the line of the railroad, any of its branches, or the Schuylkill Canal.

An additional charge of 25 cents per ton will be made on chestnut and pea coal to whatever points consigned. If the shipper signs a release of all demands arising from a deficiency of weight at the place of destination, and agrees to indemnify the company from all claims by reason thereof, such additional charge will not be made. Releases, properly prepared, will be furnished, and can be signed at the coal offices of the company, at St. Clair, Palo Alto, Schuylkill Haven, Mount Carbon, Pine Grove, and Tamaqua.

For consumption at local points in coal region, including Shamokin, Herndon, Schuylkill Haven, Pine Grove, and Tamaqua, three cents per ton per mile, and two cents per ton additional; and a charge for *car service* of fifteen cents per ton when in Philadelphia and Reading Railroad cars, provided no charge, including freight tolls and car service, shall be less than twenty-five cents per ton. If the coal is for manufacturers, the rate wi be two cents per ton per mile, and two cents per ton additional; and a charge for car service of five cents per ton when in Philadelphia and Reading Railroad cars. Provided no charge, including freight, tolls, and car service, shall be less than fifteen cents per ton.

Sent westward via Northern Central ilway (in N. C. R W. Co.'s cars), four and two tenths cents per ton per mile, to Locust Gap, Shamokin, or Herndon, provided no charge will be made less than fifteen cents per on.

One mile extra will be added for coal passing through the East Mahanoy Tunnel.

Fractions of distances and rates will always be stated in *tenths*.

No charge will be made for weighing or making returns of coal shipped, and the latter will be furnished free of charge upon application to the weighmaster; if these returns are to be sent by mail, envelopes properly stamped and addressed, must be furnished to the weighmasters.

All coal will be charged the rates (both lateral and main line) current on the day it is weighed; it will also be waybilled on the same day.

Ocean Freights.

Ocean Freights on coal, iron, etc., per ton of 2000 lbs. to and from foreign and domestic ports, for four weeks ending Oct. 17th, 1878, are given below.

DATE.	From	To	Cargo.	R'te
Sept. 25	Lima	Great Britain	Guano	‡
" 25	Huanellos	Havana	Guano	$14
" 28	Poughkeepsie	Richmond	Iron ore	75
" 28	Hoboken	Boston	*	1.60
Oct. 1	British Columbia	San Francisco	Coal	3.00
" 3	New York	Richmond	Iron ore	90
" 8	Boston	San Francisco	Iron	†
" 12	Georgetown	Aspinwall	Coal	3.50
" 12	Philadelphia	Aspinwall	Coal	3.25
" 12	Philadelphia	St. Thomas	Coal	2.30
" 12	Philadelphia	Havana	Coal	2.00

* Railroad iron. † $10@$12. ‡ 45@50s.

Quebec Salt, Coal, and Pig-Iron Receipts.—The quantities of salt, coal, and pig-iron received at Quebec from sea, during the season of 1878 up to October 3d, as compared with same period in 1877, are as under:

	Salt.	Coal.	Pig-Iron.
1877	17,008 tons.	109,812 tons.	175 tons.
1878	11,721 "	80,415 "	400 "

Lake Freights on Coal and Iron Ore.

Representing the latest actual charters up to Oct. 16th.

From	To	Rate per ton.	From	To	Rate per ton.
Ashtabula	Chicago	45	Cleveland	Chicago	40–45
Bay City	Milwauk'e	60	"	Milwaukee	40
Buffalo	Erie	15	"	Ashtabl'a*	90
"	Cleveland	20–25	Charlotte	Milwaukee	70
"	Portage	80	Erie	Chicago	40
"	Saginaw	35	Fairhaven	"	70
"	Chicago	25	"	Milwaukee	70
"	Milwaukee	25	Marquette	Ashtabl'a*	1.00
"	Detroit	15	Oswego	Chicago	70
"	Alpena	30	"	Milwaukee	70
"	St. Clair	65	"	Detroit	45
Charlotte	Chicago	70	Sandusky	Toronto	90
Chicago	Milwaukee	25	Toledo	Milwaukee	50
"	Green Bay	30–35	"	Cleveland*	40

* Iron ore

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct. 18, 1878.

American Pig.—The demand continues to be very light, and only for small quantities. Prices are as low and irregular as at any previous time. Some of the companies, not willing to part with their products at less than cost, are practically out of the market. The inevitable results of selling iron for less than cost are showing themselves in the financial condition of some of the furnace companies. The failure of the Coleraine furnace is announced, while the embarrassment of two others is rumored. Trouble from other companies is indicated. We quote No. 1 Foundry at $16@$17; No. 2 Foundry. $15@$16, and Forge, $14@$15.

Scotch Pig.—The business doing in this class of iron has been entirely in a retail way. We quote Eglinton at $21.75; Coltness, $23@23.50, and Glengarnock, $22.50@23.

Messrs. John E. Swan & Brothers, of Glasgow, under date of October 4th, report 90 furnaces in blast against 87 a year previous; 196,733 tons (an increase of 1495 tons during the week) in Connal & Co.'s stores, against 162,108 tons at the corresponding time in 1877. The shipments to that time, as compared with like period of 1877, show a falling off of 54,442 tons, while the imports of Middlesbrough iron show a decrease of 4773 tons. Warrants were quoted at 44s. 7d., as against an average of 46s. 7½d. for the month of September. The leading brands of No. 1 pig-iron were quoted as follows: Gartsherry, 54s.; Coltness, 56s.; Summerlee, 52s.; Langloan, 56s.; Glengarnock, 51s., and Eglinton, 46s. 6d. Middlesbrough pig-iron, f. o. b. Tees was quoted as follows: No. 1, 42s.; No. 2, 40s.; No. 3, 38s. 6d.; No. 4, 38s.; No. 4 forge, 38s. Bessemer iron f. o. b. Barrow is quoted as follows: No. 1, 65s.; No. 2, 62s. 6d.; No. 3, 60s.

Rails.—The business in steel rails amounts to 11,000 tons on private terms. There is still a fair inquiry for both steel and iron rails. We quote steel rails at mills at $42@$45. and iron rails at $32@$36.

Old Rails.—Sales aggregating 6000 tons at, it is said, $19, and upon that basis are reported. There is still a good inquiry. We quote $19@$20.

Wrought Scrap.—We learn of no business in this article, and quote nominally at $20.50@$21.

Baltimore. Oct. 14, 1878.

[Specially reported by Messrs. R. C. HOFFMAN & Co.]

The demand for iron continues fair, and prices were maintained at about following rates, viz.:

Balt. Char.	$26.00@$28.00	M. & White	$13.00@$14.00
Va. "	26.00@ 28.00	C'IC.B.Blooms	50.00@ 52.00
Anth. No. 1	19.00@ 20.00	" " Billetts	52.00@ 55.00
" " 2	18.00@ 19.00	Refi'd Blooms	43.00@ 45.00
" " 3	16.00@ 17.00		

Buffalo. Oct. 15, 1878.

[Specially reported by Messrs. PALEN & BURNS.]

Prices per gross ton delivered on cars at Buffalo:

	4 mos.
No. 1 Foundry	$17.50
No. 2 "	16.50
No. 3 Forge	15.00
B 1	17.00
American Scotch A 1	19.50
" " B 1	18.50
" " No. 2	18.00
" " No. 3	.....
Best selected Connellsville coke, per net ton	4.75

Chattanooga. Oct. 14, 1878.

[Specially reported by J. F. JAMES, Dealer in Iron & Metals.]

Advices dated up to the 12th inst., which reached me today, show no signs of improvement in the iron trade South and Southwest since my last report. The continued presence of the yellow fever at our market center has caused additional stagnation to the trade. Some few orders have been received for foundry irons North and Northwest, and considerable demand for old rails for various nail mills. All the furnaces in blast report good output, with stocks accumulating. Prices unchanged.

Tenn., Ala. & Ga. Charcoal, No. 1 Foundry	$16 00@$17 00		
Tenn., Ala. & Ga. Charcoal, No. 2 Foundry	15 00@ 16 00		
Tenn., Ala. & Ga. Charcoal, Gray Forge	13 00@ 15 00		
Tenn., Ala. & Ga. Coke, No. 1 Foundry	18 00@ 19 00		
Tenn., Ala. & Ga. Coke, No. 2 Foundry	16 00@ 17 00		
Tenn., Ala. & Ga. Coke, Gray Forge	14 00@ 15 00		
Charcoal or Coke, white and mottled	13 00@		
Old rails	$18 00@$19 00	Wr'ght scrap,	
Old car wh'ls.	16 00@ 17 00	No. 2	$11 00
Wr'ght scrap,		Cast scrap	10 00
No. 1	16 00	Muck bar	30 00@ 32 00

IRON ORES.

Red hematite or fossiliferous f. o. c. at mines, about 55 per cent metallic iron	$1.25
Brown hematite about 55 per cent metallic iron	1.75

Cincinnati. Oct. 15, 1878.

[Specially reported by Messrs. TRABER & AUBERY, Commission Merchants for the sale of pig iron, blooms, ore, etc.]

Below please find closing quotations of our pig-iron market:

CHARCOAL.

H'n'g Rock	No. 1 Foundry & B 1	$21 00@$22 50	—4 mos
"	No. 2 "	20 00@ 21 00	—4 mos
"	Soft Silver Gray	19 00@ 20 00	—4 mos
"	Mill	18 00@ 19 00	—4 mos
Tennessee	No. 1 Foundry	21 00@	—4 mos
"	No. 2 "	20 00@	—4 mos
"	Mill	18 00@ 19 00	—4 mos

STONE COAL.

Ohio	No. 1 Foundry	$17 00@	—4 mos
"	No. 2 "	16 00@	—4 mos
"	No. 3 "	15 00@	—4 mos
"	No. 4 "	14 00@	—4 mos
"	Mill	16 00@	—4 mos

COKE.

Ohio & W. Va.	No. 1 Foundry	19 00@	—4 mos
" "	No. 2 "	18 00@	—4 mos
" "	Stove	17 00@	—4 mos
" "	Mill	17 00@	—4 mos

CAR-WHEEL.

H'n'g R., C. B { Hecla, Vesuvius, Etna, Buckhorn, Jefferson. } $30 00@ 35 00—4 mos.
Maryland, " Cedar Point ..... 35 00@ .....—4 mos
Missouri, " Maramec ..... 28 00@ ... .—4 mos

BLOOMS.

Charcoal .....$45 00@$50 00- cash.

SCRAP IRON.

Cast ..... 40c. @ 45c.—cash
Wrought ..... 62½c.@ $1.00—cash

Columbus, O. Oct. 14, 1878.

[Specially reported by Messrs. King, Gilbert & Warner, Dealers in Pig Iron and Ores.]

The demand for pig-iron is increasing, but consumers are not willing to anticipate their wants at prices which sellers are willing to accept. Best grades of strong foundry iron are scarce and prices firm.

The usual time, four months, allowed on quotations.

FOUNDRY IRONS

No. 1 Hanging Rock Charcoal .....$22 00@$22 50
No. 2 " " " ..... @ .....
No. 1 Hocking Valley soft and strong from pure limestone ores ..... 18 00@ 18 50
No. 2 Hocking Valley soft and strong from pure limestone ores ..... 17 00@ 17 50
No. 1 American Scotch ..... 18 00@ 18 50
No. 1 Moxahala ..... 18 00@ 18 50
No. 2 " ..... 17 00@ 17 50
No. 1 Shawnee ..... 18 00@ 18 50
No. 1 Eliza (Jackson County) ..... 18 00@ 18 50
Silver Gray ..... 16 50@ 17 00

MILL IRONS.

Gray neutral ..... 16 00@ 17 00
Mottled and white neutral ..... 15 50@ 16 00
Gray cold short ..... 16 00@ 16 50
Mottled and white cold short ..... 15 00@ 15 50

Cleveland. Oct. 15, 1878.

[Specially reported by Messrs. C. E. Bingham & Co.]

No. 1 Red Specular .....$6.00 per ton cash.
No. 2 " ..... 5.00 " "
Red Hematite ..... 4.25 " "
Lake Champlain ore ..... 5.25 " "

FOUNDRY IRON.

No. 1 L. S. Charcoal..$22 00 Am. S., No. 1, Ch. Val..$20 00
No. 2 " " .. 21 00 " " B—1, " " .. 18 00
No. 1 Anthracite..... 20 00 " " No. 2 " " .. 18 00
No. 2 " ..... 19 00 No. 1, Massillon..... 19 00
No. 1 Bituminous..... 20 00 B—1, " 17 00
No. 2 " ..... 18 00 No. 2, " 16 00

CAR-WHEEL AND MALLEABLE IRON.

No. 3, L. S. Charcoal..$23 00 | Nos. 5 & 6, L. S. Char..$23 00
No 4, " " .. 23 00 |

BESSEMER IRON.

Nos. 1 & 2. L. S. Char. $23 00

FORGE IRON.

No. 1, Gray .....$18 00 | White and Mottled....$16 00

Louisville. Oct. 15, 1878.

[Specially reported by Messrs. George H. Hull & Co.]

There is a good demand for all grades of pig-iron, and the market is firm at full figures.

The usual time, four months, is allowed on quotations below:

FOUNDRY IRONS.

	No. 1.	No. 2.
Hanging Rock Charcoal...	$21 00@$22 00	$19 00@$20 00
Southern Charcoal.....	18 00@ 18 50	16 50@ 17 00
H'n'g Rock, Stc'l & Coke..	19 00@ 20 00	18 00@ 18 50
Southern Stonecoal & Coke	18 50@ 19 00	17 00@ 17 .0

"Amer. Scotch"... $18@$19 | Silver Gray... $16@$17.00

MILL IRONS.

No. 1 Charcoal, Cold-short & Neutral. .....$16 00@$17 00
No. 1 Stc'l & Coke, Cold-short & Neutral.... 16 00@ 16 50
No. 2 Stc'l & Coke, Cold-short & Neutral.... 15 00@ 15 50
No. 1 Missouri and Indiana, Red-short..... 20 00@ 21 00
White & Mottled, Cold-short & Neutral..... 14 50@ 15 00

CAR-WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold Blast .....$29 00@$30 00
Alabama and Georgia, Cold Blast .. .. 28 00@ 29 00
Kentucky, Cold Blast..... .... 25 00@ 28 00

Milwaukee. Oct. 15, 1878.

[Specially reported by Messrs. R. P. Elmore & Co.]

CHARCOAL IRON.

No. 1 Lake Superior per gross ton .....$23 00—4 mos.
" 2 " " " " " ..... 22 00—4 mos.

ANTHRACITE IRON.

No. 1 Anthracite per gross ton ..... 23 00—4 mos.
" 2 " " " " ..... 22 00—4 mos.

STONE COAL AND COKE.

Warner's Am Sc'th (Bk. Band, per ton$24 00@ ....—4 mos.
Soft Silvery per ton .... 21 00@ ....—4 mos.
Ohio Stone Coal..... 22 00@ . ..—4 mos.

CAR WHEEL.

Lake Superior ores per ton .....$24 00@25 00—4 mos

Philadelphia. Oct. 17, 1878.

[Specially reported by Justice Cox, Jr., & Co., Iron Merchants, 333 Walnut street, Philadelphia.]

Pig Iron.—The demand for pig iron continues exceedingly light, for the reason that only hand-to-mouth orders are coming on the market. The failure of C. F. Shoener this week created some talk and disturbed confidence for the time, but it has blown over, as it is hoped he will make some arrangements with his creditors in a few days. We report sales of about 2000 tons, and quote $17 to $19 for No. 1; $16 to $18 for No. 2, and $15 to $16 for Gray Forge; mottled sells from $13 to $15.

Manufactured Iron.—The demand for bars is somewhat better, and prices can be quoted stiffer, although an order for 500 tons is reported at as low prices as any time this year; but the necessities of the mill and a cash offer bought the iron. In Plate and Tank quite a large business is doing. All mills making this class of iron are running full. Nothing new in Skelp, but a large order is pending that, should it be placed, will fill at least two mills for the balance of the winter, leaving the other mills to get a profit on their production. We quote bars, 1 7-10c. to 2c. ℔.; plate and tank, 2 1-10c. to 6c. ℔.; skelp, 1 8-10c. to 2c. ℔.

Rails.—The demand for steel rails continues good, and mills making this class of rail have all they can do for the balance of the year. Iron rails are in good demand, but low-price sale. We quote steel, $42 to $44; iron, $32 to $35, all at mills.

Old Rails.—The demand continues, but prices do no suffer. We quote $18 to $19, and report sales of 3000 tons.

Scrap. Wrought is quoted at $19 to $22; cash, $12 to $16.

Old Wheels are quoted at $17 to $18, dull.

Pittsburg. Oct. 15, 1878.

[Specially reported by A. H. Childs.]

	4 mos.		4 mos.
No. 1 F'dry	$19.00@$20.00	M. & White	$15.00@$16.00
No. 2 "	18.00@ 19.00	Hot Blast Ch.	20.00@ 23.0(
Gray Forge	16.50@ 19.00	Cold Blast W.	35.00@ 37.0(

Richmond, Va. Oct. 15, 1878.

[Specially reported by Asa Snyder, Esq.]

A fair demand, at quotations, exists for nearly all articles quoted in the schedule below. The indications are not so favorable for a late fall business as those of the same period last year.

Amer. Scotch Pig Iron..... .....$21.50@$22.50
Anthracite " " No. 1 .... 19.00@ 20.00
" " " No. 2..... 18.50@ 19.00
" " " No. 3 ..... 17.00@ 18.00
" " Mottled .. .. 15.00@ 16.00
Coke " No. 1 ..... 19.00@ 20.00
" " No. 2 .... 18.00@ 19.00
Va. Cold Blast Charcoal Pig Iron, cold short 19.00@ 22.00
" " " " " " neutral. 27.00@ 28.00
" Warm " " " " cold short 18.00@ 20.00
" " " " " mill..... 17 00@ 18 00
Old Rails ..... 16.50@ 17.50
Wrought scrap No. 1 ..... 16.00@ 17.00
Cast scrap—Machinery ... . 15.00@ 16.00
Richmond Refined Bar Iron ..... 2.00@ 2.10
Horse-shoes .... 4.00@ .....
Mule-shoes .... 5.00@ . ..
Old Dominion nails (standard size)..... 2.25 keg.

Freight by sail to New York, $1.60 for 2240 lbs.

St. Louis. Oct. 15. 1878.

[Specially reported by Messrs. Spooner & Collins, Commission Agents for all kinds of Iron.]

COLD BLAST CHARCOAL.—ALL NUMBERS.

Hanging Rock.....$28@$33 Assorted Bar Iron $1.75 rates.
Tennessee..... 25@ 30 No. 1 Wr'ght Scrap, 70c. cwt.
Kentucky..... 25@ 30 Heavy cast " 60c. "
Missouri..... 25@ 30 Light " " 40c. "
Georgia..... 25@ 30 Old rails.....$19 00@$20 00
Alabama ..... 25@ 30 Old carwheels 17 00@ 18 00

	No. 1.	No. 2.	Mill.	White and Mottl'd
Missouri stone coal.....	$22 00	$21 00	$19 00	$17 00
" charcoal.....	20 00	19 00	18 00	16 00
Tennessee charcoal.....	20 50	19 00	17 50	16 00
Tenn. coke very soft and strong.....	20 00	19 00	17 00	15 00
Hanging Rock charcoal...	24 00	23 00	21 00	20 00
" " cold short	23 00	21 00	20 00	.....
	ExNo.1	No. 1.	BNo.1.	No. 2.
Alice Hanging Rock coke.	$23 00	$22 00	$21 00	$19 00
Moxahala Black Band ores	23 00	22 00	21 00	19 00

METALS.

New York, Friday Evening, Oct. 18, 1878.

The past seven days have been very dull ones in the metal trade, and those articles influenced by foreign quotations have been rather unsettled.

It is thought, however, that the announcement of material aid by the Bank of France to the Bank of England will have a steadying effect upon the London market.

A correspondent, writing us from London, under date of October 4th, says:

"Our metal market continues in a very depressed state, and prices show a tendency to a further decline. There is no change in the statistical position of any metals, sufficient to warrant the present fall in values; and the chief cause of the downward movement appears to be the fear that the City of Glasgow Bank may have made heavy advances on some of our leading articles, and which may possibly have to be realized at an unfavorable moment. All this is, however, the merest conjecture; but, in times of commercial uneasiness, the wildest rumors generally meet with the readiest credence."

RECEIPTS OF METALS AT NEW YORK FOR THE FOUR WEEKS ENDING OCTOBER 17TH AND YEAR FROM JANUARY 1ST, 1878.

	Sept. 26	Oct. 3.	Oct. 10.	Oct. 17	Year from Jan. 1
Copper, bbls ...	1,033	324	211	345	19,757
Copper, boxes...	....	.....	.....	. ...	113
Copper, cakes...	....	781	309	979	14,118
Lead, pigs.....	1,410	838	7,820	2,015	237,709
Spelter, pieces..	628	...	... ...	....	34,527
Quicksil'r, flasks	....	250	.....	....	1,221

Gold Coin.—The price of gold during the week under review has ranged from 101¼ to 100⅛, and closed at 100⅛.

Copper.—We are reported sales aggregating 150,000 to 200,000 lbs., at 15½@15⅝@15¾c. Round lots can still be had at 15½c., while for small lots, 15⅝@15¾c. are asked.

Messrs. Vivian, Younger & Bond, of London, under date of October 4th, say of copper:

"Prices have not shown much variation during the month; Chili bars after having touched £59 15s., rallied to £60 5s., and £60 10s. for special brands. The principal transactions were in furnace stuff, being relatively cheaper than bars, which importers have for the most part declined to sell at £60, probably owing to the higher cost in Chili. At the close, however, there is much more desire to sell, and this price would be accepted freely from second hands.

"The charters of Chilian copper produce, advised by cablegram from Valparaiso, represent 4100 tons in fine copper for the month of September.

"The quantity of Chili bars, ores, and regulus in stock at, and afloat for, Liverpool, Swansea, and Havre, and of English and foreign copper in London, is thus estimated in fine copper:

	Oct. 1st, 1878.	Sept. 1st, 1877.	Oct. 1st, 1877.
Stock.....	37,865	37,751	30,652
Chili produce shipping and afloat per mail advices.....	5,800	6,350	4,200
Total, tons.....	43,665	44,101	34,852
Chili produce chartered for per cable advices received up to date.....	5,900	2,950	.....
Australian produce afloat....	800	1,600	.....

Tin.—Since our last, the London market for Straits dropped to £53. From some cause, not made public here, the quotation has steadily advanced, reaching, according to to-day's cable advices, £56 10s. The quotation at Singapore is $17.50, and at Penang, $17.12½, with exchange at 3s. 9d. The shipments of tin by steam and sail to the United States for the first half of October amounted to 125 tons. There have been sales to arrive of 50 tons Straits at 13¼c., 60 days. On spot the sales amount to 1000 to 1500 pigs at 13¼@14c. At the close the market is higher but unsteady, 14¼@14½c. being asked. Sales have been made of 20 tons of L. & F. at 13 1-5@13¼c. At the close the quotation is 13⅝@13½c.

Vivian, Younger & Bond, of London, under date of October 4th, say of tin:

"Prices have again declined £3 per ton during the past, as in the preceding month, and though the importers have sold freely, the decline has been accelerated by the persistent realization of speculative holdings, partly from financial reasons, and partly because the conviction seems to be growing that the present range of values is not out of all reason, looking at the continuous supplies. Straits and Australian sold from 58s. down to 55s. 3d., until 55s. was accepted for spot parcels from first hands, and there are now sellers at this price.

"The September shipments from Australia are not known, owing to an interruption of the cable, but from previous advices, 750 tons are expected to be shipped, and from the Straits about 200 tons.

"At the Dutch Trading Co.'s sale on the 25th ult., 24,171 slabs of banca sold at from 35½ to 36 guilders, average 35¾, equal to £59 15s. in Holland.

"The deliveries from London warehouses were 1147 tons; and 50 tons went overside to America, on account of arrivals of 1281 tons.

"The stock of foreign tin in London and Holland is thus estimated:

	1878		1877.
	Sept. 1st. Tons.	Oct. 1st. Tons.	Oct. 1st. Tons.
Foreign tin in London.....	10,097	10,181	9,271
Banca tin in Holland.....	1,188	1,661	1,354
" in company's hands.....	1,528	977	865
Billiton tin in Holland.....	1,695	1,676	1,440
	14,508	14,495	12,930
Quantity of tin afloat for Europe.....	3,500	3,500	3,000
Quotations on the same dates being for Straits.....	£58.10s.	£55.15s.	£66.10s.

Tin Plates.—The business in these has been light. It includes 500 boxes of charcoal ternes, at $5.25, and 500 boxes of charcoal tins at $5.75. We quote, in gold, per box, as follows: Charcoal, bright, ⅛ X, Melyn grade, at $5.87½@$6, and Allaway grade, $5.75 @$5.87½; charcoal ternes, Allaway grade, $5.25; coke, bright, B. V. grade, $4.75@$4.80; coke roofing, 14×20, $4.70.

Lead.—The sales have been only in a small way, at 3·60c., at which price holders are firm at the close, while buyers are not anxious to purchase at that figure. Stocks continue to accumulate, and on spot amount to about 6000 tons, while to arrive by water, during the next thirty days, there are about 800 tons due. A statistical position is being established that will very probably result at some later date in lower prices than have lately ruled.

The San Francisco *Commercial Herald* of October 12th reports the following shipments by the Granada *via* Panama to New York: Base bullion, 125,863 lbs., and pig lead, 400,000 lbs.

The exports of lead from January 1st to September 30th, from Great Britain to China, amounted to 10,999 tons, as against 8235 tons for the like period of 1877. The exports to Japan for the same periods were 1434 and 854 tons respectively.

Vivian, Younger & Bond, of London, under date of October 4th, say of lead :

"Lead has again declined about 7s. 6d. per ton during the past month. English sold down to £15 17s. 6d. for good ordinary shipping brands, and soft Spanish to £15 12s. 6d."

Spelter and Zinc. — Both of these articles are very quiet. The former is quoted at 4·90@5c., and the latter at 5¾c.

Antimony.—With but little business doing this metal is quoted at 12½c. for Hallett's and 12½c. for Cookson's.

Quicksilver.—The San Francisco *Commerrial Herald* of October 12th says : "The spot stock is light, and the same is said to be the case in Hong Kong. The market here is irregular—there is a demand for it, and while some holders ask 45c. and refuse to sell for less, there are others feeding the market at 43@43½c. The Granada carried to Mexico 100 flasks. There appears to be a disposition in some quarters to create a combination to put up prices, but thus far without success."

Bullion.—The liability to a considerable fall indicated in our last has been realized by a decline in London to 49½d. and to 1.06⅛ for fine here, in consequence of the new policy of the government in limiting its weekly purchases to an amount not up to our weekly production by at least 200,000 oz., and the difficulty if not impossibility of finding a market for this surplus. London can not at present absorb this, and until an outlet is found for it the market must be unsettled and precarious, with every probability of its reaching still lower figures. The San Francisco market is quoted at 16 per cent discount.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

Date.	London Pence.	N. Y. Cents.	Date.	London Pence.	N. Y. Cents.
Oct. 12....	50¾	110	Oct. 16.	50	107⅛
Oct. 14.....	50¾	109½	Oct. 17.	49½	106½
Oct. 15.....	50½	109	Oct. 18.	49½	106½

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments in addition to those announced in our issue of Oct. 12th :

October	2d	California	Nev	$59,854.03
"	4th	Tybo Con	"	11,349.55
"	5th	Northern Belle	"	9,078.08
"	8th	Navajo	"	7,700.00
"	8th	Leopard	"	4,700.00
"	8th	Manhattan	"	34,800.00
"	9th	Hillside	"	11,500.00
"	8th	Bodie	Cal	*28,250.53
—		Idaho (G. V.)	"	163,000.00
—		Standard	"	‡120,424.23
"	2d	Silver King	Ariz	72,150.00
"	8th	Hackberry	"	6,132.33
September	28th	Peck	"	6,046.00
"	29th	Mineral Park	"	4,200.00
"	29th	McCracken	"	7,251.00
"	2d	Christy	Utah	6,903.00
"	10th	Ontario	"	48,950.00

* Product for month of September, $196,596.30.
† " " "
‡ " " "

The Plumas Eureka Mine, Cal., is yielding from $30,000 to $40,000 per month.

Wells, Fargo & Co.'s treasure receipts for the quarter ending September 30th aggregated $14,661,200, as against $19,611,900 for the same period in 1877. There was a falling off in the silver product of nearly $7,000,000, and an increase of $2,000,000 in the gold product.

Gold Bullion for Coinage.—WASHINGTON, Oct. 15.—Arrangements have been recently perfected by the Treasury Department to purchase the gold bullion deposited at the assay office at Charlotte, N. C., and at the mint at Denver, Col., at its usual coining value, less the usual mint charges for parting and refining and the expense of transportation to the mint at Philadelphia for conversion into coin. Payment for the gold bullion purchased at the above-mentioned places will be made in legal-tender notes or in silver dollars, at the option of the depositors. Heretofore bullion deposited at these institutions has been returned to the depositor in unparted bars, stamped with the weight and fineness, the bars so stamped being disposed of to local bullion dealers. The present arrangement, however, will protect the miner and enable him to obtain a better price for his gold. The department is also arranging to purchase the gold deposited at the assay offices at Helena, Montana, and Boise City, Idaho, upon similar terms and conditions.

Bids for Silver Bullion.—WASHINGTON, October 17th.—The following circular was issued to-day by the Secretary of the Treasury : " Notice is hereby given that bids for the sale of silver bullion in lots of not less than 10,000 ounces, and its delivery free of expense to the government at Philadelphia, San Francisco, and Carson, respectively, will be received every Wednesday, either by telegraph or by letter. All bids will be addressed to the Director of the Mints, Treasury Department, Washington, D. C., and will state the quantity offered in fine ounces, and the price per ounce fine, payable in standard silver dollars.

"Bidders whose offers may be accepted, either as to the whole amount offered or any part thereof, will be notified by telegraph on the same day. Until further notice, the amount to be purchased weekly will be about 400,000 fine ounces, and the first day for receiving bids will be Wednesday, the 23d inst. Sellers will be required to complete their deliveries within ten days from the date of the acceptance of their offer. When the bullion purchased is of a character to require parting or refining, the usual mint charges for those operations will be paid by the seller. Where the bars offered bear the stamp of well-known private refiners or assayers, the superintendent of the mint at which the bullion is delivered will be instructed to pay at his discretion and, pending, melt and assay such approximate value as he may regard safe and proper. The right to reject all bids, or any portion thereof, if they should not appear to be advantageous to the government, is hereby reserved ; and also to accept any portion of the amounts offered, instead of the whole,"

Salt Lake Ore and Metal Market.

SALT LAKE CITY, Utah, Oct. 18, 1878.

Argentiferous Lead (Base Bullion), $28 per ton for lead ; $1.12 per ounce for silver ; $20 per ounce for gold. The quotations for silver are based upon the silver in the lead of 80 to 120 ounces per ton of 2000 lbs.

The *Inter-Ocean's* correspondent, under date of October 8th, says :

"The bullion market is very much depressed, with sales at $28 per ton for lead, $1.12 per ounce for silver. The shipments for the week ending October 5th, of lead, bullion, and ore, are as follows : 13 cars bullion to Pittsburg, 11 cars bullion to Omaha, 8 cars lead to San Francisco, 1 car ore to Omaha, 9 cars ore to Hilliard, 4 cars copper ore to Phœnixville. Bullion, 513,776 lbs. ; lead, 170,119 lbs. ; ore, 210,306 lbs. ; copper ore, 84,118 lbs. ; total, 998,319 lbs."

FINANCIAL.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here, at Philadelphia and Baltimore for the week ending the 18th inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

Stocks.	Par Value.	High'st	Lowest	Closing	Sales : Shares.
American Coal Co.	$25	.....	.....	30	.....
St.L.,I.M.& S.R.Co..	100	13½	7⅛	10¼	8,070
Spring Mt. Coal Co.	50	.....	.....	50	.....
*Cambria Iron Co..	50	.....	.....	58	114
*Penn. Salt Mf'g Co.	50	.....	.....	67	.....
*Westm'land C. Co.	50	.....	.....	50	.....
*Buck Mt. Coal Co..	50	.....	.....	38	.....
*Schuyl. Nav. Co...	50	.....	.....	.....	.....
†B.&O.RR.Co.1st pf	.....	.....	.....	95	.....
†B.&O.RR.Co.2d pf	100	.....	.....	85	.....
" " " com	90	86¼	85¼	86¼	180
†George's C'k C. Co	100	.....	.....	86½	.....
†S. Clara M'g Co...	100	.....	.....	25	.....
†Atlantic Coal Co.	10	.....	.....	90	.....

Bonds.	Princ'l. When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1892	J. & D.	.....	.....	.....
" " " 2d mtge.	1881	M. & S.	.....	103	.....
N.J.C.,1stmtge.new	1890	F. & A.	.....	.....	.....
" " 1st mtge.,con	1899	Q.	68¼	66	*31,000
" " convt.....	1902	M. & N.	.....	.....	.....
Lehigh & W. B., con	1899	Q.	59	.....	†5,000
Am. Dock & Imp. 7s	.....	J. & J.	.....	.....	.....
St.L.I.M.& S..1st mt	1892	F. & A.	105¼	105	12,000
Ches. & O., 1st mtge	1899	M. & N.	.....	.....	.....
D & H C Co.,1stm.rg	1884	J. & J.	98	.....	1,000
" " " " " "	1891	J. & J.	99	.....	1,000
" " " " m.loan cp	1894	A. & O.	97⅜	94	5,000
" " " " " rg.	1894	A. & O.	98	.....	1,000
" " " " new mge.	.....	.....	.....	.....	.....
*L.V.R.,1stm.6s.cp.	1898	J. & D.	.....	112	.....
" " " rg.	1898	J. & D.	112	.....	1,000
" " " 2d m. 7s,rg.	1910	M. & S.	116	115¾	9,000
" " " con.m.6s,rg	1823	J. & D.	101	.....	3,000
" " " 6s cp.	1923	J. & D.	.....	101	.....
*Pa. RR.,1st m.6s,cp	1880	J. & J.	.....	.....	.....
" " g. m., 6s, cp.	1910	J. & J.	108¼	.....	5,000
" " " 6s, rg.	1910	A. & O.	.....	.....	.....
" " con.m.6s,rg.	1905	Q.	96¾	.....	10,000
" " " 6s, cp.	1905	J. & D.	96¾	96½	29,000
" " new loan, 5s	.....	.....	111¼	111	3,000
*P.& R. R., 1st m.6s, R. C. 43-44.....	1880	J. & J.	104½	.....	1,000
P. & R. R., 1st m. 6s, R. C. 48-49.....	1880	J. & J	.....	.....	.....
P.& R. R.,2d m.7s cp	1893	A. & O.	.....	108¾	.....
" " " scrip....	1882	J. & J.	55	51	4,495
" " " in.m.7s,cp	1896	J. & D.	.....	.....	.....
" " " c.m.7s,cp.	1911	J. & D.	.....	.....	.....
" " " " 7s. rg.	1911	J. & D.	103	.....	10,000
" " " cvt.7s,R.C	1893	J. & J.	.....	102½	.....
" " C.& I.Co.,Deb 7s, R. C.....	1892	M. & S.	.....	.....	.....
& R.C.& I. Co., m. 7s, R. C.....	'92-3	various	.....	.....	.....
L. Nav. Co.,6s,rg.m.	1884	J. & Q.	104½	.....	1,300
" " RR., rg. m.	1897	F. & Q.	106	.....	2,000
" " cvt. co. G. R.	1894	M. & S.	.....	.....	.....
" " " Gold R. C.	1897	J. & D.	95½	95	10,500
" " con.m.7s,rg.	1911	J. & D.	.....	.....	.....
*P.& N.Y.C.,7s,R.C.	1896 / 1906	J. & D.	.....	115	.....
*Pa Canal, 6s. cp..	1910	J. & J.	.....	63½	.....
*Schuyl.Nav.,1st m. 6s. rg.....	1897	M. & Q.	.....	89	.....
*Sus.Coal, 6s, rg...	1911	J. & J.	.....	.....	.....
†Balt.&O. RR., 6s..	1880	J. & J.	.....	102	.....
" " " " 6s..	1885	A. & O.	.....	105½	.....

Total transactions for the week.....$145,295

* Assented. † 2000 selling at 35.

New York Stocks.

NEW YORK, Friday Evening, Oct. 18, 1878.

The dealings in the coal stocks on this market have been larger during the past week than during any similar period for months, and the fluctuations have been quite important. The outlook for a break in the coal combination has given the quotations a downward tendency. The sales of Delaware and Hudson Canal have aggregated 11,046 shares at 49@44 ; of Delaware, Lackawanna, and Western Railroad, 213,540 at 52¾@49 ; of New Jersey Central, 12,951 at 33¼@29½.

Hampshire and Baltimore Coal Co.—At the annual stockholders' meeting of the Hampshire and Baltimore Coal Co., held on the 17th inst. for the election of directors and officers for the ensuing year, the following gentlemen were unanimously reëlected : J. George Repplier, President ; E. L. Bolles, Vice-President ; Geo. D. Pond, Secretary. Directors : J. George Repplier, E. L. Bolles, George H. Potts, George B. Satterlee, H. S. Henry, James S. Merriam, Edward Oothout.

Delaware and Hudson Canal Co.—$10,000 of the 7 per cent coupon bonds due 1894 were sold during the week at 97 per cent.

Philadelphia Stocks.

PHILADELPHIA, Friday Evening, Oct. 18, 1878.

A very liberal business has been done during the past seven days in the coal shares, which have declined under the influence of rumors that the combination was likely to break. Lehigh Coal and Navigation Company has shown the same activity noted a week ago, the sales amounting to 8860 shares at $16⅛@$15¾. The dealings in Lehigh Valley R.R. aggregate 2678 shares at $36⅝@$38 ; in Pennsylvania R.R., 56,668 shares at $33⅝@$32⅝ ; in Philadelphia and Reading, 33,374 shares at $14⅝@$13½.

Gas Stocks.

NEW YORK, Friday Evening, Oct. 18, 1878.

The market for gas stocks is very much demoralized. In many instances it is impossible to fix quotations. The whole list tends downward, and where we have been able to get prices a marked decline is noticed. For instance, the People's Gas Company, of Brooklyn, whose stock was selling for 94 per cent on the first of the year, is now bid for at 16 per cent.

GAS VS. ELECTRICITY.—The signs of the times point to the adoption of electricity for lighting purposes, with a proportionate decline in the use of gas. The proceedings at the annual meeting of the Gas-Light Association, now in progress in this city, of itself indicates the alarm which the rapid strides constantly being made in the practical utilization of electricity for illuminating purposes creates among them. The bulk of the arguments thus far presented before the meetings by the various members, of which 125 out of a total membership of 200 have been in attendance, deny its practicability, but yet are sufficiently suggestive to fully attest the importance in which it is held by the gas interests of the country. Mr. Charles Nettleton read a sensible paper on the use of gas for cooking, warming, and minor manufacturing purposes. There are 8000 small gas engines in use in Europe. The advantage is that they take care of themselves, and there is no danger of explosion They can be started in fifteen seconds, and when once started give no further trouble during the whole day. It is probable that as the consumption of gas may diminish for lighting purposes, its use in various other industries will enlarge under the encouragement of the powerful companies controlling it. The companies will then probably be forced into the adoption of water-gas, against which they have so strenuously fought. The following would seem to confirm the popular rumors, and to indicate that some improvement had been made by Mr. Edison in electric lighting.

"The Edison Electric Light Company filed its certificate of incorporation in the County Clerk's office yesterday. The object of the company is the production of light, heat, and power by means of electricity. Its capital is $300,000, and the incorporators are Tracy R. Edson, James H. Banker, Norvin Green, Robert L. Cutting, Jr., Grosvenor P. Lowery, Robert M. Galloway, Egisto P. Fabbri, George R. Kent, George W Soren, Charles F. Stone, William G. Miller, Thomas A. Edison, and George S. Hamlin."

A dispatch from Montreal, dated October 15th, states

COAL STOCKS.

Name of Company.	Capital Stock.	Shares. No.	Par Val.	Last Dividend. Mo.	Y.	A't.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted, so much per share. Oct. 12. H.	L.	Oct. 14. H.	L.	Oct. 15. H.	L.	Oct. 16. H.	L.	Oct. 17. H.	L.	Oct. 18. H.	L.	Sales.
	$		$				Per c'nt													
Consol. Coal.	10,250,000	102,500	100	Jan.	77	2½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Del. & H. C..	20,000,000	200,000	100	Aug	76	4	9	49	47	47	45¾	47	46¼	46⅝	45⅝	47⅛	46	46	44	11,046
D., L.&W. RR	26,200,000	524,000	50	July	76	2½	5	52⅜	50⅜	51⅜	49⅜	51⅝	50⅜	51⅜	50¼	52¼	50⅜	50¼	49	213,540
Lehigh C.& N	10,448,550	208,971	50	Nov	76	1½	5½	16½	16¼	16⅛	15⅞	16	15¾	16	15⅝	16¼	16	16¼	16	8,860
Leh. V'y R. R	27,228,855	540,858	50	July	78	1	.....	.....	.....	37¼	36⅜	37⅛	37⅜	37⅛	37.	37⅜	37⅜	38	37⅛	2,678
Maryl'd Coal	4,400,000	44,000	100	Jan.	76	1½	1½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. J. C. R. R.	20,600,000	206,000	100	Apr	76	2½	2½	32⅛	32	33¼	31	32⅝	31¼	32⅛	31¼	33	31⅜	31⅛	29¼	12,961
Penn. Coal...	5,000,000	100,000	50	May	78	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R...	62,870,200	1,337,404	50	May	77	1½	8	32⅜	33⅛	33⅛	32⅝	33⅛	33	32⅛	32⅜	33	32⅜	33¼	33¼	56,668
Ph. & R. R. R	34,278,175	685,563	50	Jan	'76	2½	10	14⅜	14¼	14½	13⅝	14⅜	13¾	13⅝	13⅜	14⅛	13¾	13⅜	13¾	33,374

The Delaware and Hudson Canal Co. has paid in dividends to date $38,821,104, and the Philadelphia and Reading $48,012,497.

Total Sales.....$38,017.

GENERAL MINING STOCKS.

Dividend Paying Mines.

Name and Location of Company.		Feet on Vein.	Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total levied to date.	Assessments. Date and amount per share of last.	Dividends. Total paid to date.	Dividends. Last Dividend.	Dividends. Rate p. An	Highest and Lowest Prices per Share in Currency at which Sales were Made. Oct. 12. H.	Oct. 12. L.	Oct. 14. H.	Oct. 14. L.	Oct. 15. H.	Oct. 15. L.	Oct. .16 H.	Oct. .16 L.	Oct. 17. H.	Oct. 17. L.	Oct. 18. H.	Oct. 18. L.	Sales.
Alps	Nev.	800		30,000		204,000	Sept. 1878 $1 00	37,500	Apr. 1876	$0 50	..	..	....	....	4	.....	....	....	....	....	3	....	300
American	Col.		1,000,000	100,000	10	*		80,000	Sept. 1878	0 10 12	....	....	....	....	....	....	....	....	....	....	....	....	
Belcher, G. S.	Nev.	1,040	10,400,000	104,000	100	1,288,200	July 1878 1 00	15,397,200	Apr. 1876	1 00 12	....	....	....	....	....	....	....	....	....	....	....	....	
Bobtail, G.	Col.	2,500	1,136,630	227,326	5	*		56,831	Nov. 1877	25	....	....	....	....	....	....	....	....	....	....	....	....	
Bobtail Tunnel, G.	Col.		100,000	20,000	5	52,000	July 1873 0 30	48,000	June 1878	50	....	....	....	....	....	....	....	....	....	....	....	....	
Bodie, G.	Cal.		5,000,000	50,000	100	25,000	Feb. 1878	650,000	Oct. 1878	2 00 20	....	....	22	....	....	....	....	....	....	....	....	....	10
California, G. S.	Nev.	900	54,000,000	540,000	100			29,160,000	Aug. 1878	1 00 24	13¾	13¾	13¼	....	13¼	12	12⅛	12⅛	12	11¼	12⅞	....	310
Calumet & Hecla, C.	Mch		2,000,000	80,000	25	1,200,000		13,450,000	Aug. 1878	5 00 20	185	....	184½	....	184½	....	184½	183	183	182	....	....	125
Central, C.	Mch		500,000	20,000	25	100,000	June 1862 0 65	1,260,000	Feb. 1878	5 00	....	....	....	....	....	....	....	....	....	....	....	....	
Chollar Potosi, G. S.	Nev.	1,400	2,800,000	28,000	100	1,750,000	Sept. 1878 5 00	3,080,000	Feb. 1872	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Copper Falls, C.	Mch		1,000,000	20,000	50	535,000	May. 1876	100,000	Nov. 1871	1 00	....	....	....	....	1¾	....	....	....	....	....	....	....	200
Cons. Virginia, G. S.	Nev.	710	54,000,000	540,000	100	474,600	June 1873 3 00	40,500,000	June 1878	1 00 12	14	....	14	....	13¼	....	13	12¾	12½	....	13¼	13	377
Confidence, G. S.	Nev.	130	2,496,000	24,960	100	256,320	Apr. 1878 0 50	78,000	May. 1865	8½ 8½	....	....	....	....	....	....	....	....	....	....	....	....	
Cons. Her. & Roe	Col.	16,500	1,000,000	100,000	10	*		120,000			....	....	....	....	....	....	....	....	....	....	....	....	
Crown Point, G. S.	Nev.	600	10,000,000	100,000	100	1,873,370	Sept. 1878 1 00	11,588,000	Jan. 1875	2 00 24	....	....	....	....	....	....	....	....	....	....	....	....	
Daney	Nev.	2,000		108,000	....	70,200	July 1877 0 20	56,000	July 1863	1 10½	....	....	....	....	....	....	....	....	....	....	....	....	
Eureka Cons., G. S. L.	Nev.		5,000,000	50,000	100	100,000	.... 1876 1 00	2,950,000	Aug. 1878	3 00 24	....	....	....	....	....	....	....	....	....	....	....	....	
Eureka G. Mg., G.	Cal.	1,680	2,000,000	20,000	100			2,149,000	Apr. 1878	0 25	....	....	....	....	....	....	....	....	....	....	....	....	
Franklin, C.	Mch		500,000	20,000	25	360,000	June 1876 5 00	585,000	Nov. 1871	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Gila	Ariz			100,000	....	50,000	Apr. 1878 0 25	50,000	Aug. 1875	0 25	....	....	....	....	....	....	....	....	....	....	....	....	
Gould &Curry, G. S.	Nev.	612	10,800,000	108,000	100	2,666,000	Apr. 1878 1 00	3,826,800	Oct. 1870	10 00	....	....	....	....	....	....	....	....	....	....	....	....	
Grand Prize	Nev.	1,500		100,000	....	100,000	July. 1878 1 00	400,000	Feb. 1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Hale & Norcross, G. S.	Nev.	400	11,200,000	112,000	100	2,914,000	Aug 1878 1 00	1,598,000	Apr. 1871	5 00 12	....	....	....	....	....	....	....	....	....	....	....	....	
Hukill, G. S.	Col.	3,288	1,000,000	100,000	10	*		210,000	Oct. 1878	0 10 12	....	....	4.15	....	....	....	....	....	....	....	....	....	25
Independence	Nev.	1,500		100,000	....	55,000	Feb. 1878 15	15,000	Aug. 1878	25	....	....	....	....	....	....	....	....	....	....	....	....	
Kentuck, G. S.	Nev.	95	3,000,000	30,000	100	300,000	Aug. 1878 1 00	1,252,000	Mar. 1870	5 00	....	....	....	....	....	....	....	....	....	....	....	....	
K. K. Cons.	Nev.			50,000	....	200,000	Sept. 1878 1 00	50,000	Sept. 1873	0 25	....	....	....	....	....	....	....	....	....	....	....	....	
Leeds	Uth.	3,000		60,000				60,000	Sept. 1878	0 15	....	....	....	....	....	....	....	....	....	....	....	....	
Leopard, L. G. S.	Nev.	1,500	5,000,000	50,000	100	150,000	June 1878 50	162,500	Dec. 1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	
Manhattan	Nev.			50,000				400,000	Feb. 1877	2 00	....	....	....	....	....	....	....	....	....	....	....	....	
Merrimac, S.	Mas.	1,500	500,000	100,000	5		June	120,000	Mar.	12	....	....	....	....	....	....	....	....	....	....	....	....	
Minesota, C.	Mch.		1,000,000	20,000	50	436,000	1869 1 00	1,820,000	Mar. 1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	
Modoc	Cal.	4,000		100,000	....	350,000	Sept. 1878 0 50	50,000	Dec. 1876	0 50	....	....	....	....	....	....	....	....	....	....	....	....	
Moose	Col.	39,000	2,000,000	200,000	10	*		550,000	Mar. 1878	0 25	10	3.05	3	3.10	....	3.20	3-10	3⅛	3.20	4	3⅜	3.95	3.85	4,150
National, C.	Mch.		500,000	20,000	25	195,000	Oct. 1875 1 00	380,000	Oct. 1873	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
N. Y. & Colorado, G.	Col.		1,000,000	50,000	20	*		20,000	Mar. 1877	0 20	....	....	....	....	....	....	....	....	....	....	....	....	
Northern Belle, S.	Nev.	1,600	5,000,000	50,000	100			1,425,000	Feb. 1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Ontario	Uth.	3,000	10,000,000	100,000	100			1,800,000	Oct. 1878	1 00 12	....	....	40	....	40¼	....	40⅛	....	40⅜	40¼	....	....	380
Ophir, G. S.	Nev.	675	10,080,000	100,800	100	3,336,000	Sept. 1878 1 00	1,394,400	Mar. 1864	4 00	....	....	....	....	....	....	....	....	....	....	....	....	
Pewabic, C.	Mch.		500,000	20,000	25	185,000	June 1868 3 00	460,000	July 1873	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Phœnix, C.	Mch.		1,000,000	20,000	50	817,500	Sept. 1870 3 00	20,000	Jan. 1876	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Plumas	Cal.		1,000,000	100,000	10			80,000	Oct. 1878	10	4.20	....	....	....	....	....	....	....	4¼	....	4.15	4.05	500
Polar Star, G. S.	Col.	1,300	500,000	50,000	10	*		5,000	Jan. 1878	0 10	....	....	....	....	....	....	....	....	....	....	....	....	
Quincy, C.	Mch.		200,000	20,000	10	*		2,230,000	Feb. 1878	5 00	....	....	12½	....	....	....	....	....	....	....	....	....	5
Raymond & Ely, G. S.	Nev.	5,000	3,000,000	30,000	100	600,000	Aug. 1878 1 00	3,075,000	Sept. 1873	3 00	....	....	....	....	....	....	....	....	....	....	....	....	
Ridge, C.	Mch.		500,000	20,000	25	200,000		90,000	Feb. 1875	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Rye Patch	Nev.	1,600		30,000		97,500	Nov. 1876 0 50	105,000	Dec. 1877	0 25	....	....	....	....	....	....	....	....	....	....	....	....	
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10			250,000			....	....	....	....	....	....	....	....	....	....	....	....	
Savage, G. S.	Nev.	800	11,200,000	112,000	100	3,972,500	Sept. 1878 1 00	4,400,000	June 1869	3 00	....	....	....	....	....	....	....	....	....	....	....	....	
Seaton, G. S.	Col.	1,700	500,000	50,000	10	*		10,000	May 1877	0 10 12	....	....	....	....	....	....	....	....	....	....	....	....	
Sierra Nevada, G. S.	Nev.	3,650	10,000,000	100,000	100	2,050,000	July 1878 1 00	102,000	Jan. 1871	1 00 10	....	....	....	....	....	....	....	....	....	....	....	....	
Silver King								400,000	Aug. 1878	0 50	....	....	....	....	....	....	....	....	....	....	....	....	
Standard	Cal.			50,000		50,000	July 1878 1 00	450,000	Aug. 1878	1 00	....	....	....	....	....	....	....	....	....	....	....	....	
Tip Top	Ariz	1,500		100,000	....	120,000	Aug. 1878 50				....	....	....	....	....	....	....	....	1¾	....	....	....	50
Yellow Jacket, G. S.	Nev.	1,200	12,000,000	120,000	100	3,798,000	Sept. 1878 1 00	2,184,000	Aug. 1871	2 50	....	....	....	....	....	....	....	....	....	....	....	....	
McClinton	Cal.	1,000		0,000							....	....	....	....	....	....	....	....	....	....	....	....	

Non-Dividend Mines.

Allouez, C.	Mch.		1,000,000	20,000	50	940,000	May 1876 5 00												2¾	....		....	100
Alpha, G. S.	Nev.	300	3,000,000	3,000	100	240,000	Mar. 1878 1 00																
Alta	Nev.	600		100,000	....	885,000	July 1878 1 00																
Am. Flag, G.	Col.	5,300	600,000	60,000	10	*															18c	....	100
Andes	Nev.	2,000		100,000	....	325,000	Apr 1878 0 25																
Baltimore Cons.	Nev.	1,050		84,000	....	1,015,000	Apr. 1878 0 50																
Benton	Nev.	600		108,000	....	37,800	Aug. 1878 0 35																
Bechtel	Cal.			60,000	....	60,000	Aug. 1878 0 50																
Bertha & Edith, G.	Vir.	645 acs.	3,500,000	350,000	10	*					4c	....	5c	....	5c	....	5c	....	5c	....	5c	....	11,800
Best & Belcher, G. S.	Nev.	545	10,080,000	100,800	100	438,590	Apr. 1878 1 00																
Boyle	Nev.	600		108,000	....	16,210	Aug. 1878 0 15																
Buckeye	Col.		2,000,000	400,000		*					60c	58c	63c	58c	57c	....	59c	55c	57c	....	60c	....	6,000
Bullion, G. S.	Nev.	943⅛	10,000,000	100,000	100	2,952,000	Aug. 1878 1 50																
Caledonia, G. S.	Nev.	2,188	10,000,000	100,000	100	1,490,000	Sept. 1878 0 50																
Cashier	Col.		500,000	250,000	2	*																	
Challenge	Nev.	90		50,000																			
Cleveland, G.	Col.	3,715	250,000	25,000	10	*																	
Cons. Imperial, G. S.	Nev.	468	50,000,000	500,000	100	775,000	Sept. 1878 0 20																
Con. N. Slope & E. C.T.	Col.	15,000	500,000	10,000	50	*																	
Dahlonega	Ga.		250,000	250,000	1	*					22c	20c	22c	20c	20c	19c	20c	19c	20c	19c	20c	19c	17,900
Dana, C.	Mch.		500,000	20,000	25	68,000	Jan. 1863 0 50																
Dawson, S.	Ont.		1,200,000	60,000	20		1878																
Day	Nev.	1,500		100,000	....	55,000	Sept. 1878 0 25																
Dayton	Nev.	1,600		100,000	....	750,000	Apr. 1878 0 25																
De Frees	Ariz	1,500		100,000	....	100,000	Aug. 0 10																
Duncan, S.	Ont.		1,200,000	60,000	20	75,000	July 1876 4⅛				4½	4¼	4½	....	4½	....	4½	....	4¼	4½	....	....	735
Exchequer, G. S.	Nev.	400	10,000,000	100,000	100	380,000	Jan. 1878 1 00																
Findley, G.	Geo.		200,000	200,000	1						54c	53c	....	....	....	....	....	....	....	....	53c	51c	5,000
Gold Placer, G.	Col.		5,000,000	200,000	25						18c	....	21c	17c	20c	18c	20c	18c	22c	19c	24c	20c	16,100
Granville, G.	N. C.	357 acs.	1,000,000	100,000	10	*	0 50																
Humboldt, C.	Mch.		500,000	20,000	25	100,000	Sept 1878 0 15																
Hussey	Nev.	4,500		100,000		70,000	June 1876 0 15				52c	....	55c	50c	....	46c	....	46c	....	....	....	....	600
International, S.	Ont.		1,200,000	60,000	20																		
Julia, G. S.	Nev.	3,000	11,000,000	110,000	100	635,000	Sept. 1878 1 00																
Justice, G. S.	Nev.	2,100	10,500,000	105,000	100	2,658,500	Aug. 1878 1 05																
King's Mountain, G.	N. C.		1,200,000	120,000	10	*	1877																
Kossuth	Nev.	2,700		108,000	....	421,200	Aug. 0 15														35c	....	100
Lacrosse	Col.	3,900	1,000,000	100,000	10	*					27c	....	29c	28c	30c	28c	38c	29c	42c	38c	42c	36c	94,700
Leviathan	Nev.	2,000		100,000	....	240,000	May. 1878 05				1	....	....	....	....	....	....	....	....	....	80c	....	350
Luzerne	Col.	4,200	5,000,000	500,000	10	*																	
Madison, C.	Mch.		500,000	20,000	25	123,000	Sept 1876 0 10																
Mariposa preferred	Cal.	44,387	5,000,000	50,000	100	1,425,000	June 1877 1 00								4	3.35	3	....	3½	....			500
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	June 1878 1 00						3	....	3	....	2.90	....	3½	3	3½	3	2,400
McCracken	Ariz	4,500		100,000	....	50,000	July 1878																
Martin White	Nev.			100,000	....	500,000	July 1877 1 00																
Memphis	Col.	6,000	300,000	60,000	5	*	0 50																
Mesnard, C.	Mch.		500,000	20,000	25	160,000	Apr. 1876 0 50																
Mexican, G. S.	Nev.	600	10,080,000	100,800	100	217,400	May. 1878																
Minnietta Belle	Cal.	1,500		100,000	....	75,000	Apr. 1878 0 50																
Mt. Bross Tunnel	Col.	8,600	2,000,000	200,000	10	*	1878																
Navago		1,500		100,000	....	125,000	May. 1878 0 25																
New York	Nev.	1,000		100,000	....	730,000	Aug. 1878 0 30																
Occidental	Nev.	1,706		40,000		72,500	Feb. 1877 0 25																
Orig. Keystone	Nev.	1,500																					
Overman, G. S.	Nev.	1,200	3,840,000	38,400	100	3,404,280	Sept. 1878 3 00																
Osceola, C.	Mch.		1,000,000	40,000	25	2,567,880	Nov. 1877 3 00						11	....									100
Petherick, C.	Mch.		500,000	20,000	100	165,533	Mar. 1876 0 50																
Pleasant View, G.	Col.	1,200	200,000	20,000	10	*																	
Quicksilver preferred	Cal.	8,500	4,291,300			*									82½	....							100
" common	Cal.	acres.	5,708,700	100,000	100						13	....											200
Rockland, C.	Mch		500,000	20,000	25	495,000	Jan. 1874 1 00																
Sag. Belcher, G. S.	Nev.	160	640,000	6,400	100	244,800	Apr. 1876 5 00																
Silver Hill, G. S.	Nev.	5,400	10,800,000	108,000	100	1,242,000	July. 1878 0 50																
Silver Prize	Nev.	1,500		100,000	....	23,000	May. 1878 0 15																
Star, C.	Mch.		500,000	20,000	25	295,000	Mar. 1876 0 25																
Superior, C.	Mch.		500,000	20,000	25	340,000	Mar. 1878 0 25																
Tioga	Cal.	1,500		100,000			July 1878 0 10																
Trojan	Nev.	1,500		100,000	....	215,000	June 1878 0 25																
Union Cons. G. S.	Nev.	850	10,000,000	100,000	100	310,000	Apr. 1874 0 25																
Utah	Nev.	1,000		20,000	....	660,000	Aug. 1878 2 00																
Ward	Nev.	1,200		110,000	....	66,000	Sept 1878 0 30																
Wells Fargo	Nev.	1,500		108,000	....	216,000	Sept 1878 0 50																

Total Assessment levied to date..... $53,036,240

g. Gold. s. Silver. L. Lead. c. Copper. * Non-Assessable.

Total Dividends paid to date..... $230,495,332

Total Sales for the week..... 164,492.

that gas stocks declined from 9 to 13 per cent within the day, owing to reports of the success of Edison's Electric Light.

Barrie, Ont., Gas Co.—The works of this company have been leased for fifteen years to Messrs. Cahill & Littlehales, of Hamilton, who agree to pay for the same 10 per cent per annum on the original outlay of the company.

The Gas Panic in London.—LONDON, Oct. 18, 1878.—Shares of gas corporations are still rapidly falling in value on account of the "Edison panic." The city corporation has resolved to appropriate a certain amount of money to conduct experiments in testing the value of electric light. It has been already resolved to illuminate Billingsgate Fish Market with electricity.

During the week we have noticed the following regular sales of stocks on the various Boards:

New York Gas-Light Co.—68 shares, at $80 per share.

People's Gas Co., of Baltimore.—95 shares, at 13@12½ per cent.

Camden (N. J.) Gas Co.—50 shares, at $100 per share.

Boston Gas Co.—3 shares, at $762½ per share.

Jamaica Plain (Mass.) Gas-Light Co.—20 shares, at $111¾ per share.

New York Gas-Light Co.—37 shares, at $37½ per share.

Manhattan Gas-Light Co.—70 shares, at $151@$149½ per share.

The following list of Companies in New York and vinity is corrected weekly by GEORGE H. PRENTISS, Broiker and Dealer in Gas Stocks, No. 30 Broad street, New York:

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	Am. of last.	Date of last.	QUOTATI'NS Bid.	As'd
	$		P. ct.				
Mutual, N. Y.	5,000,000	$100	6	1½	Oct., '78	.....	72
" Bonds	90,000	1,000	6	3½	Aug., '78	95	103
N. York "	4,000,000	.....	8	4	May, '78	75	85
Metrop. "	2,500,000	100	10	5	Aug., '78	105	.....
" Certfs.	1,000,000	.....	7	3½	" '78	100	102
Harlem "	1,850,000	50	6	3	Feb., '78	40	50
Manhat. "	4,000,000	50	.....‡	5	May '78	145	155
Brooklyn, Bkln.	2,000,000	50	15	5	Apr., '78	130	140
Nassau	1,000,000	25	.....‡	3	July, '78	60	65
" Certfs.	700,000	1,000	7	3½	May, '78	85	92
People's	1,000,000	10	....‡	3½	Jan., '76	16	22
" Certfs.	300,000	1,000	7	3½	July, '78	75	90
" Bonds	325,000	.....	7	3½	May, '78	90	96½
Metrop. "	1,000,000	100	5	2½	May, '78	50	60
W'msb'g "	1,000,000	50	8	1½	July, '78	.....	90
" Certfs.	1,000,000	.....	7	3½	July, '78	.....	98
Citizens'	1,200,000	20	....‡	3	July, '78	60	70
" Certfs.	320,000	1,000	7	3½	Apr '78	90	98
J. C., N. J.	750,000	20	10	7½	July, '78	140	150
Municipal, N. Y.	466,000	50	.....	.....	.....	80	92
" Bonds	750,000	.....	.....	.....	.....	.....	...
.....	.....	.....	.....	.....	.....	.....	...

Copper Stocks.

Reported by WILSON W. FAY & Co., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street.

BOSTON, Wednesday Evening, Oct. 16, 1878.

The market shows no very notable change, with the exception of a rise in Duncan and a decline in Calumet and Hecla.

There has been about the same number of transactions as last week, without making any fluctuations, except as mentioned above, and, therefore, offering no inducement to invest for a "flyer," and as good, sound investments to hold, these stocks, with the exception of Calumet and Hecla, are unthought of.

Calumet and Hecla has declared a dividend of $5 per share, payable November 15th, 1878. The stock, notwithstanding, has sold from 185 down to 183, closing at 183½@184½.

Copper Falls is still being taken at 1¼, and is offered at 1 9-16.

Franklin shows no change, no sales having taken place in it.

National is still 25@50c., and no sales.

Osceola is a little soft, having sold at $12, Div. on, and $11, Ex Div., and closing 11 bid and 12 asked.

Pewabic is very dull at 1¼@1¾.

Quincy is a little firmer at 12½@13, and a sale of a small lot at 12½.

Ridge is steady at 1⅛@1⅜.

Duncan sold up to 4½, there being good reports current from the mine, and sold back again to 4⅛, and closes firm at 4⅛@4¼.

International is a shade stronger, closing 50c. bid and 55c. asked, there being but little stock on the market.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Oct. 18, 1878.

The dealings in mining stocks at the Mining Exchange have been greater this week than last, much more activity having been developed the two past days. The dealings in the San Francisco stocks have not been so large as for several weeks past. They have been as follows: Bodie, 10 shares at $22; California, 310 at $13¾@$11¼; Consolidated Virginia, 377 at $14@$12½; Independence, 625 at $3½@$3.70; Tip Top, 50 at $1¾; Hussey, 600 at 55@46c.; Kossuth, 100 at 35c., and Leviathan, 350 at 80c.

In the stocks of the regular list the dealings have been as follows: Hukill, 25 at $4.15; Moose, 4150 at $3@$4; Ontario, 380 at $40@$40⅝; Plumas, 500 $4.25@$4.05; American Flag, 100 at 18c.; Bertha & Edith, 11,800 at 4@5c.; Buckeye, 6000 at 63@55c.; Dahlonega, 17,900 at 22@19c.; Findley, 5600 at 54@51c.; Gold Placer, 16,100 at 17@24c.; Lacrosse, 94,700 at 27@42c.; American, 300 at $4@$3.

To the public we give the advice that it should carefully investigate the value of not only the stocks listed here, but also of those quoted in San Francisco. Pay no heed to the quoted prices, but pay such figures for the stocks as are warranted after a careful examination into the value of the properties. We shall take the higher figures at which some of the stocks on our list have sold during the week, and see what ridiculously high prices the people are asked to pay for mining properties. The result should account for the lack of business at the Exchange, and upon the same basis it will always be impossible to establish a market in this city for mining stocks. Before quoting these figures it may be well to state that first-class properties can be bought at prices upon which from 2 to 5 per cent per month is being earned and likely to be earned to an extent equal at least to the amount asked for the properties, with reasonable prospects that the mines will continue to pay as well for a long time to come.

American is reported to have sold during the week at $4 per share. This is equal to $400,000 for the mine. A report comes along that a strike has been made, but this lacks confirmation. This mine was originally purchased for $17,000, and in its best days was offered at $175,000, but did not find purchasers among the *mining* men to whom it was offered. For months, the American has been in ore so poor that it did not pay to work. The company now owns the Slide mine, which, when purchased, was considered a better property than the American, and cost the company $30,000 or $40,000, and of this amount it is said only about $4000 was paid in cash, and the balance in stock.

The Melvina, which always bore the reputation of being the best telluride mine in Colorado, was bonded at $140,000, and was not taken.

Moose has sold at $4, equal to $800,000 for the mine. It also is reported to have made a strike; but this, like that of the American, lacks confirmation. This mine has not paid dividends for months, and it is questionable if it ever earned them. Until the mine has demonstrated its ability to earn dividends, the present value put upon it is quite fictitious.

American Flag sold at 18c., equal to $9000 for the property. In the first place, there is nothing being done by this company upon the property it claims to own, and in the second place it is hardly a question that the company has long since lost the property it claims.

Bertha & Edith sold at 5c. a share, equal to $17,500 for its whole property. This company has been unable to negotiate a mortgage of $10,000 on the property.

Buckeye sold at 60c. a share, equal to $240,000 for the whole property. The original property, a few months ago, was "jumpable," if any one thought it worth "jumping." It is utterly impossible to keep track of the operations of the company, for in every popular district it claims to secure some property, the value or ownership of which it is impossible to ascertain. No evidence has ever been made public to show that the property has any value whatever. The present price of the stock is the result of manipulation.

Gold Placer sold at 24c., equal to $48,000 for the whole property. When this stock was selling at about $3 per share, we were censured for stating that we did not believe the property had a value of more than $10,000. We have not yet seen reason to "raise our limit."

Lacrosse sold at 42c., equal to $42,000 for the property. Up to a few months ago the mine had produced no ore, and since that time, if any has been found, the facts in the case have not been made public.

We might continue our list, but our readers can readily make the calculations for themselves, sufficient data being given by us in our table of mining stocks. If the public loses money by investing in such stocks as these, the industry as a whole should not be condemned, for certainly they do not offer even the chances of a fair gamble.

We have received the prospectus of the Empire Mining and Milling Company, of Utah. This company has a capital stock of $1,000,000, and it offers one quarter of this at twenty per cent of par for working capital. This would be equivalent to a valuation of $200,000 for the property, which consists of undeveloped or partially developed claims, none of which have ever shown ore in paying quantity. Much greater stress is laid upon the fact that these claims are in the same district as the Ontario mine (and some of them are supposed to be on the continuation of that vein) than upon any value that has ever been found upon or in the claims themselves. As a one-half to a four-fifths interest is willingly given anywhere in the West for the working capital to develop a "prospect," the offer of only a one fourth in this case is but small inducement for any one to risk money in the stock. Moreover, the price, $200,000, which is fixed as the value of the property, is simply absurd. The prospectus nowhere claims that any pay ore has ever been found upon the property; and, indeed, the burden of that document is that "the gangue, ore, and walls are of the same nature and appearance as that of the Ontario" (with the very important difference), "except as to richness." We trust that the public will estimate at their true value such properties. It seems otherwise to be a fair "prospect" worth exploring, but all that should be done before bringing it out as a "mine," and offering the public stock in it as such.

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS Oct. 11.	Oct. 12.	Oct. 14.	Oct. 15.	Oct. 16.	Oct. 17.	Opening Oct. 18.
Alpha	16⅛	15⅝	15	14	14	14⅛	15
Alta	15½	14⅞	13⅛	13	12	14	15
Belcher	10	9½	9½	8¾	8½	9¼	9⅛
Best & Bel.	27¼	25½	24½	23¼	24	25½	27
Bullion	15⅝	15¼	13	13	10⅝	12¾	12½
Caledonia	5⅛	5	5	4⅛	3⅜	4¼	5
California	13	13	12½	12½	11⅜	13¼	13
Challar-Pot	62	60	55	56½	53	60	62
Confidence	12⅛	11¾	12¼	11⅛	9½	11⅛	.....
Con. Va.	14	14	13½	12⅛	12½	13¾	13½
Crown P'int	9¾	9⅛	9¾	9	8¾	9½	10
Eureka Con	44	44½	45	45	44	43½	44
Exchequer	7	6⅜	6⅜	6	5⅜	6½	.....
Gould & Cur	20	19½	17¼	16¼	16	17½	18
Grand Prize	5	4¾	4⅞	5⅛	5¼	5	5
Hale & Nor.	28¾	28½	25½	25	25½	26¾	25
Julia Con.	7⅝	7⅝	7½	7⅛	6⅞	7⅛	7
Justice	10¼	9⅝	9¼	8¾	8¾	8¾	9
Kentuck	8½	7	7	7	6½	6⅞	6½
Mexican	77½	73¾	62	59¾	56¾	65	63–65
North. Belle	10	10¾	9¾	10	10	10	.....
Ophir	62	57½	51	50¾	50	54½	50–53
Overman	26½	25¾	25	24	23	24	25
Ray. & Ely	.....	5¾	5¾	5¼	4	5½	.....
Savage	24¾	23⅝	19¾	20¾	20¼	21¾	22
Seg. Belcher	39	.....	.....	.....	.....	.....	39
Sierra Nev.	205	191	157	173	172	189	194
Silver Hill	3¼	3⅛	3⅛	2⅞	2¼	2⅝	2⅛
Union Con.	184	174½	155	153	150	162	161
Yel. Jacket	32½	31¾	28½	26	26½	27½	35

While the above list opens to-day rather below the prices prevailing a week ago, yet the majority of the stocks show a decided improvement on most of the quotations prevailing during the greater part of the week. The movements in the new bonanza stocks have been very irregular; in the stock of the Sierra Nevada Co., the extreme difference in the quotations has amounted to $70, the greatest decline was on the 16th inst., when it touched $135, from which it has rallied, and opens to-day at $194. Union Consolidated on the above date touched $129, but has since recovered to $161, not making as good a showing in the reaction as that of its contemporary. Some of our exchanges speak of both of these properties in the most glowing terms, and note continued improvements in the appearance of the mines, yet, in face of this, we have to record differences equal to one third of the value of the mines within the week. In this connection, we note the statement that Mr. J. C. Flood recently bought 5000 shares of Union Consolidated stock at $200 per share, giving his check for $1,000,000 in payment for the same. It is understood that this purchase secures control of this mine.

The old bonanzas are rather increasing their ore yield, the combined output amounting to about 550 tons per day. At the recent regular monthly meeting of these companies it was decided to pass the dividends, the bullion yield of the two companies for September amounting to about $550,000, which is but slightly in excess of the extraordinary expenditures now being made. The C. and C. shaft is down over 2100 feet. The suits against these companies are again being revived. Advices from San Francisco this week mention two new ones being begun. They are supposed to be commenced instead of the recent $35,000,000 suit, and are intended to cure the defect in that suit found by the Court in sustaining the demurrer of the defendants in the former action, that there was a misjoinder of parties and causes.

Yellow Jacket is noteworthy as opening to-day at the highest of the week, viz., $35. This mine is now the deepest on the Comstock—the greatest depth attained in it being on the 2400-foot level, which is 2833 feet below the Gould and Curry croppings, the datum lines of the Comstock mines. The next deepest mine on the lode is the Savage, in which the greatest depth attained is 2430 feet from the surface, or 2643 below the datum line. The 3200-foot level of the Yellow

Jacket is equal to the 3400 level of the Imperial; the latter is the third deepest mine on the lode.

Mexican and Ophir scarcely sustain the average tendency of the market. It is rumored with reference to the latter mine that it is meeting with some difficulty with water in its mine.

The stock of the Julia mine is fairly sustained. The Sutro branch of this mine is now in a distance of 200 feet. The temperature in the face of the drift is 100° and in the drill-holes 106°. They are sending this branch along at a wonderful rate—99 feet since last report. The drift from the Chollar-Norcross-Savage shaft is nearly connected with the Sutro Tunnel.

The stock of the Eureka Consolidated Company is unchanged. The annual meeting of this company will be held in San Francisco, on the 21st inst. The Eureka *Leader* says:

"Since the discovery of Eureka District, there has never been so bright an outlook as at the present time. Bullion-yielding mines can be counted by the score, and the prospects are that many more will wheel into line shortly."

Grand Prize stock is fairly maintained. A recent letter from this mine states that operations are progressing satisfactorily. We append a list of those stocks, with their closing prices in San Francisco yesterday, that do not appear in our regular report: Argenta, $5½; Bechtel, $1; Belle Isle, 50c.; Benton, $9; Black Hawk, $1¼; Bodie, $19; Booker, $1¼; Bulwer, $18; Endowment, $1; Goodshaw, $1; Hamburg, $2½; Homestake, $9; Hussey, 50c.; Independence, $3; Jackson, $9½; Leviathan, 75c.; Manhattan, $3½; McClinton, 50c.; Meadow Valley, 25c.; Mono, $4; Navajo, 75c.; Original Keystone, $7; Phil. Sheridan, $1; Richter, $1; Scorpion, $5½; Silver King, $16; Tioga, $2½; Tip Top, $1¼; Utah, $35; Ward, $1¾; Wells-Fargo, 75c.

The *Commercial Herald* of the 9th inst says of the market: "Though the mining stock market was characterized by a marked degree of activity the past week, prices were quite variable, and in many instances a decline is noticeable. That the market generally should continue to be so well maintained is a surprise to every body, and while the fairly promising mines—those that show the best indications of a future output—are the backbone to the market, the wildcats continue to swarm like a disturbed nest of yellow jackets, leaving stings here and there that will eventually produce an unpleasant irritation. They are just so much thrown in to make the market active among small dealers, whose belief in large profits in the near future is as assured as those who have control of bonanzas—supposed bonanzas—and the well-held concentrations for a rise. To understand the market requires no small amount of tact, and it is only when a controlling interest exercises its power that all signs fail, for then a booming business is sure to follow, extending, in many instances, throughout the entire list. Just when to take this tide proves the sharpness of the operator. We have encouraging words from all parts of the mining field on this coast, and we hope a full measure of prosperity will be the outcome. Sierra Nevada is somewhat on the down grade in price. However, the reports are very favorable as to the development of a huge bonanza, which becomes more and more pronounced as the work proceeds. It is confidently believed, by those who pretend to know, that this stock will advance to $500, but just when, so that every body might take advantage of the present price, is not stated. It is claimed that a large body of ore is already developed, in extent some 250 feet, assays of which run very high. The drill will, of course, reveal every thing to the insiders long before the public will know it."

The Bank of California.—The annual meeting of the stockholders of the Bank of California was held in San Francisco on the 8th inst. There were 34,000 shares represented out of the 50,000 shares of capital stock. The report shows the net earnings of the year to have been $527,000, or over 10 per cent of the capital. About one third of the capital is still in unproductive assets, so that the earnings on the actual amount available shows a much larger percentage than appears from the above statement. The bank paid a quarterly dividend at the rate of 7 per cent per annum for the quarter ending December 31st, 1877, and also for the quarter ending March 31st, 1878. The dividends for the last two quarters were passed. The board is anxious to accumulate a strong reserve. At present the reserve is upward of $300,000.

The Nevada Bank.—"The stockholders of this institution held their annual meeting, in San Francisco, on the 8th inst. The old officers were reëlected, with the name of J. L. Flood, son of J. C. Flood, to fill the vacancy caused by the death of Mr. O'Brien. The directors are James C. Flood, J. L. Flood, James G. Fair, John W. Mackay, and Louis McLane. Mr. McLane was chosen President, and H. W. Glenny, Cashier. The sum of $500,000 was carried to the reserve fund. The capital and reserve are as follows: Paid-up capital, $10,000,000; reserve fund, $3,500,000. Total, $13,500,000. The reserve is understood to be invested in United States bonds."

The Standard Mine has declared its fourteenth consecutive dividend of $1 per share.

The Eureka (G. V.) Mine announces a dividend of $7.50 per share.

Assessments with dates when delinquent: Belcher, $2, November 12th; Moore's Flat Blue Gravel, 25c., November 11th; Andes, 25c., November 8th; Hussey, 25c., November 5th; Silver Hill, 50c., November 1st; Europa, 6c., October 28th; Sutro Mining Company, 5c., October 31st; San Francisco Petroleum Company, 30c.

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